

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[PRICE 6D.

the present occasion my province is not to show the value or advantage of hot air, as applied to combustion in some of the processes of the arts, great as I admit it to be, but rather to show where its presence is unnecessary, and to explain the grounds chemically, theoretically, and practically—in which I call on you to agree with me in condemning its application, and in rejecting its use in our better furnaces, at least, until its several advocates shall satisfactorily controvert the positions I am now laying down. I am aware that, if I prove any case, I at once extinguish the polemical, and defeat the claims, of many inventors of improved furnaces—a goodly array of hot air advocates having exhibited at the recent meeting at Leeds. Hence, however, who contend for an improved and sounder practice must not be deterred on the ground, that it may interfere with such as have promulgated an erroneous one. Now let us inquire on what principle the advocates of hot air defend its introduction, as Mr. Charles Houdouin, late furnace engineer I take this gentleman as a more worthy supporter of the hot air principle, preference to others, both because he has given it a more recent advocacy, and because, in arguing with him, I meet one who is familiar with the chemistry of combustion, though, in this instance, he, in my opinion, appears to have overlooked the principles that should govern the whole. In his paper On the Chemical Constitution of Coal," and which has already made some noise in the public journals, Mr. Houdouin observes, "Before the air can support combustion, it is necessary that it be brought to the same temperature as the gas to be inflamed; for this reason it is, that hot air supports a more vivid combustion than cold air; and the application of this principle to the burning of anthracite coal has lately much extended the use of that description of coal." From this opinion I beg to dissent. The error it involves manifestly arises from an oversight which prevails most among smoke-burning inventors—viz., their neglect of the circumstance, that what may be technically applied in the combustion of solid anthracite or coke, may be very injurious when applied to combustible gases. So far from hot air supporting more vivid combustion than cold air, the reverse I find to be the fact; but, coming from a gentleman who is an acknowledged chemist, and, I believe, practical, authority, the point demands inquiry. Now, in examining the peculiarities which attend the combustion of bodies in such opposite states as that of solid and gaseous, we shall find all the elements of the distinction which I insist should be held in view. "Before the air can support combustion (says Mr. Houdouin), it should be brought to the temperature of the gas to be inflamed; and for this very reason it is that the hot air principle has been so advantageously applied to the use of anthracite coal." Here there is a misstatement, for the combustion of the solid anthracite and the gaseous matter of coal are not done in the same category, and alleged to be technically effected by the same application. Mr. Houdouin says, "Hot air supports a more vivid combustion than cold air." But what says Professor Leslie? "The colder the air, the greater will be its effect on combustion." Hence, therefore, surprised Mr. Houdouin should have made an unequivocal assertion, since every farmer will tell him he can raise straw with greater facility on a cold than a hot day. But we need not go beyond the experience which our domestic fire affords, to prove, that in frosty weather the combustion is visibly more animated, and that when the hot currents fall on the grate, and heat the air in its approach to the fuel, the fire is said to "go up." Mr. Houdouin observes, "Before air can support combustion it is necessary that it be brought to the temperature of the gas to be inflamed." At this it is not the fact, we have but to refer to the gas lights in our tables, where the air is introduced to them at the same temperature of the atmosphere, and that such is equal to the production of the most vivid combustion, in the most intense heat—a heat, as Sir Humphrey Davy expresses it, beyond the white heat of metals. But let us examine the *volume* of the production of combustion of the gas from coal with which we have to deal. Mr. Houdouin states, that the gas produced from coal in the furnace influences at a lower temperature than the denser carbon gas (he carbonated hydrogen). The authorities contradict this; and I will, therefore, content on this point—viz., that it requires the higher temperature to produce its combustion. Now, to effect this combustion, a given quantity (meaning weight) of atmospheric oxygen is required—viz., two cubic feet for each cubic foot of the gas, and to obtain which weight of oxygen two cubic feet of air are required. Let us then take these proportions, and test the hot air principle under the varying temperature to which the air may be brought—say from 32° to 100°. If the air be at 32° degrees it will pass through a given aperture into the furnace at a given rate. But suppose, by the addition of 68° degrees of heat, we raise it to the temperature of 100°, we at once double its bulk, and now we have the same quantity of air and oxygen occupying the bulk of twenty cubic feet instead of ten. But let us proceed to raise it still higher, and, by adding another 68° degrees, raise it to 168°; the result is, that we treble its bulk, and, though we have still the same quantity, we find it bulk increased to thirty cubic feet. And now see the practical difficulty, right or impossible, of obtaining admission for an enormous body of air.

Now that the combustion of a ton of air is required 100,000 cubic feet of atmospheric temperature. If, then, the hot air principle be adopted, we add here its bulk so enlarged so to become 1,000,000 cubic feet; and if a chimney and a great draught be necessary for the same quantity, how this greater quantity be even introduced into the furnace, much less rapidly off and with the combustible gases within the limited time which furnace affords? For let us consider what is this quantity. Let us suppose the throat of the furnace at the bridge to be 500 feet wide and six inches high, and estimate now of how much a half ton. In such case, this

sayings; and it probably would not find and write with many of them, during the short time the gas was passing through the furnace.—**MR. WILLIAMS** said, that was exactly the case; the gas lost the temperature very fast, and unless the gas and oxygen came in contact atom to atom before the gas was cooled down, it was useless. It had been proved that the hotter the gas was made, the quicker the combustion.—**Professor PHILLIPS** (of the Manchester New College) thought any property of heat had been overlooked—one which showed the advantage of the hot-blast for melting iron, and its utility in heating gas in the furnace—he meant the specific heat of the air. A given weight of hot air, cooling down one degree Fahrenheit, would raise the temperature of a solid body many degrees; but the same volume of hot air would produce a very trifling effect in heating the gas, because most of the combustible gases had much more specific heat than atmospheric air, so that the volume of hot air cooling down one degree would not raise the temperature of the gas more than a very small fraction of a degree. Hydrogen (one of its principal constituents) had a very high specific heat; and, therefore, the air cooling down would yield a very trifling heat, in addition to what the gas had already attained in the furnace.—**Dr. BLACK** having adverted to the solar lamp as being constructed on the principle of supplying hot air, **Mr. WILLIAMS** said, he thought the advantage there arose from the heat radiating downwards from the dome or cup, heating the gas, and the air being projected with an increased current against the flame, thus bringing more into contact in the same time. All the heat given to the air by the apparatus would be but insignificant and inefficient.—**Dr. BLACK** said he referred to the oil lamp.—**Mr. WILLIAMS** said, **Dr. Ure** had given a valuable paper on heating the oil, in which he stated, that a greater light was obtained from the increased fluidity of the oil, owing to increased temperature. He had a common gas branch or tube, with Argand burner, conveyed more instruction that anything else he had met with. What was the difference between the gas issuing from the large orifice of the pipe, and from the sixteen little holes in the burner? From the first there came bad light, much smoke, and less heat; from the second the very reverse of these. Why? Because the sixteen holes presented much more surface of gas in contact with the air than the one large orifice; and we knew that gas and air would only come together at the surface. To increase combustion, therefore, we must increase the number of jets; and the more minute they were, the greater proportionate quantity of surface of gas was presented to the air. Finding that the only difference between them was the difference of surface, he tried to send the gas, as generated and passing over the bridge of a furnace, in small jets to mix with the oxygen of the air; but it could not be done, because not only the gas, but the carbonic acid, went over in the furnace. He then thought, if bringing jets of gas to the air were of value, bringing small jets of air to the gas would be of the same value, if there were any truth in chemistry; and this was the whole question.—On the motion of **Dr. BLACK**, the thanks of the meeting were unanimously voted to **Mr. Williams**, for his valuable and interesting communication.—**The CHAIRMAN**, in putting the vote, said, **Mr. Williams** was so clear and happy in his mode of explanation and illustration, that they were all highly indebted to him; and he hoped this would not be the last communication he would make to the gallery.—**Mr. WILLIAMS** acknowledged the vote, and the proceedings terminated.

LAW INTELLIGENCE.

DISPUTED RIGHT TO RENEWAL OF LEASE.

VICE-CHANCELLOR'S COURT—JAN. 24.

WALKER v. JEFFERYS.—His HONOUR finally disposed of this case; he had on a former day expressed himself disposed to direct two issues as to the drawing out of a mine. The parties, however, had concurred in asking the court to decide the case. The plaintiff had rested his right to relief on two grounds—first, a covenant for renewal; and, secondly, on a trust to grant a lease; as to the former, he thought the delay of the plaintiff in not demanding a lease would, or might, have barred his right to relief had the case depended on the covenant for renewal alone, but, recollecting the second ground, he did not think the delay ought to be a bar, provided that the plaintiff, or those under whom he claimed, performed their part of the lease. He had now to determine whether, upon evidence, which he had already stated was unsatisfactory to himself, the lessees had made wilful default in the performance of the covenant of the lease. The question was, upon which of the parties the onus rested of giving the information required. He thought it lay upon the plaintiff himself. Up to 1813 the lessees had worked the mines and paid royalties; in that year they ceased to do so, and became chargeable with breach of covenant, unless it could be shown that it was not by their wilful default the mines had become drowned out. After carefully considering the evidence, he felt himself compelled to say, that the plaintiff's bill must be dismissed, and with costs.

EASTERN COUNTIES AND NORTHERN AND EASTERN RAILWAYS.

COURT OF EXCHEQUER—JAN. 26.

The arguments in the case of the ATTORNEY-GENERAL v. THE EASTERN AND NORTHERN AND EASTERN RAILWAY COMPANIES, which was part heard on Monday, had involved a question as to the right of the companies to erect a station and other buildings connected with the railway over a public passage, called Goddard's Rents, was resumed at the sitting of the court this morning, and concluded. As the case was sent by the Lord Chancellor for the opinion of the court, Lord ABERNETHY intimated that the barons would certify to the Chancellor their opinion on the case submitted to them some day during the present term.

MONMOUTHSHIRE IRON AND COAL CO.—ACTION FOR CALLS.

COURT OF COMMON PLEAS—JAN. 26.

WINNER v. LAMBERT.—This was an action of debt, brought by the secretary of the Monmouthshire Iron and Coal Company, to recover from the defendant the sum of 136*l.* for calls of 2*l.* 10*s.* per share upon sixty shares held by him in the undertaking. The declaration stated that the defendant was the proprietor of sixty shares in the capital of the company, and it then set forth that he, being such proprietor, sealed and subscribed the indenture of settlement by which the company was originally constituted, and that he covenanted with the trustees of the company that it should be lawful for the board of directors to make calls as often as they thought fit upon the proprietors of shares, except the proprietors for the time being of certain shares in the indenture of settlement mentioned, and thereby exempted from the payment of calls. The declaration then alleged that certain persons, being a regularly constituted board of directors, made a call upon the proprietors of shares, and that the proprietor, or instant, due from the defendant, in respect of his sixty shares in the capital of the company, amounted to the sum of 136*l.* To this declaration the defendant demurred.

Mr. Sergeant CRANWELL, in support of the demurrer, contended, in the first place, that the action was not rightly brought by the plaintiff, as secretary of the company, but should have been brought in the names of the trustees mentioned in the Deed of Settlement. Secondly, he submitted that the liability of the defendant was not sufficiently stated on the face of the declaration. There was no allegation averring that the shares held by the defendant were not part of the exempted shares. Again, it was not stated that three months had elapsed between the date of the Deed of Settlement and the day on which the call was to be paid, the date of the deed being laid under a seal.

Mr. Sergeant STEPHEN, on behalf of the plaintiff, contended that the action was well brought by the secretary of the company, and, further, that the allegations in the declaration were sufficient to show a liability on the part of the defendant.—**The COURT** took time to consider.

BRITISH IRON COMPANY—ACTION FOR CALLS.

COURT OF QUEEN'S BENCH—JAN. 27.

SMITH v. GOLDWORTHY.—This was an action brought by the plaintiff, as the public officer of the British Iron Company, against the defendant, for the payment of calls which had been made by the directors, in respect of certain shares in the said company held by the defendant. The defendant pleaded to the action, and afterwards obtained an order of **Mr. Justice Wightman** to be allowed to pay in other place. Subsequently a rule was obtained by **Mr. Kelly** calling on the plaintiff to show cause why the defendant should not be permitted to add various other pleas, increasing the number from thirty-eight to 136, the object of such additional pleas being to deny the liability of certain proceedings which had been taken by the company, whereby the defendant became liable for calls not exceeding 4 190*s.* per share, instead of 10*s.*, which was the maximum in the case of his purchasing his shares.

The SOLICITOR-GENERAL (with whom **Mr. BENT** now appeared) rose against the rule, and contended that it was inadvisable. It ought to have been a rule for setting aside the order of **Mr. Justice Wightman**, whereas it was for a different order and another rule, so that if it were granted, there would be two contradictory orders and rules. At all events, the rule to plead, which had been granted by the learned judge, ought to be before the court so as to serve as the foundation of these decisions.

Mr. KELLY (with whom was **Mr. J. W. Smith**) in support of the rule, said they did not seek to discharge the order of **Mr. Justice Wightman**, for they had taken several proceedings upon it, and if that order were rescinded their proceedings would be rendered void. They seek not therefore being that order before the court.

The COURT said they would consult the other judges on the subject.

Mr. KELLY said that in both the Courts of Common Pleas and Exchequer similar rules had been obtained, but they had not yet been argued.

INFRINGEMENT OF PATENT RIGHT.

BONA FIDE—JAN. 27.

WILKIN v. TIBBELL.—This matter, for the complaint of the defendant for the breach of the injunction restraining him from using the plaintiff's

NEW PROPPELLING ENGINE.—A Mr. Corder has invented a new engine, the use of which, it is said, are likely to be highly important in railways—as much so, indeed, as “*extensively to supersede*” the machinery at work on the Blackwall and other railways, where eighteen miles of rope are constantly being wound and unwound. The French Government have, it is further rumored, appointed a commission to examine the engine, with a view, it appeared, to adapt it to the new lines of road now in course of formation in that country.

PROCEEDINGS OF PUBLIC COMPANIES.

UNITED MEXICAN MINING ASSOCIATION.

The half-yearly general meeting of the shareholders in the above association was held at the London Tavern, on Wednesday, the 26th inst.

Sir J. EASTHOPE, Bart., in the chair.

The SECRETARY (Mr. Mather) having read the advertisement convening the present meeting, and the minutes of the last, which were confirmed, proceeded to read the directors' report and statement of accounts, as follow:

REPORT.

The directors, in reporting to the proprietors the circumstances that have taken place since the last half-yearly general meeting, and also the present state of the affairs of the association, beg leave, in the first instance, to call their attention to the mine of Rayas, the result of the operations in which have been as follows—viz., for the first six months, viz., from 1st January to 30th June last, up to which latter date the half-yearly accounts were, as usual, made out and settled with the owners, the amount of outlay was £10,979 4 2.

The amount of returns £10,979 4 2
Leaving a loss of £3,510 2 6
And the debt of the mine, on the 30th June, 1841, £390,100 4 6. The result of operations for the three months, from the 1st July to the 30th September, was—

Month	Outlay	Returns
July	£42,391 3 2	£37,319 1 0
August	29,729 1 7	29,992 0 4
September	24,583 7 1	26,069 6 4
Total	£105,884 4 2	£94,378 0 8

Leaving a loss of £11,506 4 2, and the value of ore on hand was, on the 30th September, 1841, £29,777 1 7, and, agreeably to Mr. Shoolbred's frequently expressed opinion, in which he is borne out by Mr. Glenside's special report of the 23d Sept. last, no improvement in the produce of the mine can be expected until the requisite works of research and investigation—so much and so long wanted—are undertaken, and the prosecution of which has been delayed until a new contract with the owners can be obtained.

Royalty Contracts.—The old contracts for the mine would, from lapse of time, have expired on the 31st December ult., but Mr. Shoolbred had given them up on the 9th October, and the mine had been placed at the disposal of the owners, in consequence of his having failed in his endeavours to effect a new contract on equitable terms, as also of the impoverished and burthenome state of the mine, which, for the period those contracts had still to run, would have entailed an expense on the association of upwards of £21,000. A correspondence on the subject of a new contract has long been carried on with the owners, though, up to the date of Mr. Shoolbred's last advice, nothing had been definitively settled, and Mr. Shoolbred, in the last letter received from him, dated 5th November, states as follows—viz., "With reference to my letter of the 23d ult. to the court, on the subject of a new contract for the mine of Rayas, I have now to state to the directors that the conference and negotiation, in respect of a new contract, were proceeding with every prospect and probability of terminating speedily and successfully, when they were suddenly and unexpectedly set aside by a verbal message from the Sardinians, to the effect, that they had reconsidered the matter, and had come to the determination to take their chance for the present, without any such contract with the association. This unfortunate circumstance is the more inexplicable, as the conditions were all arranged and adopted, with slight modifications, with the exception of the amount of 'alimentos,' or advances on account of profits, and in this respect the difference between us was so trifling an extent, that concession, on either side, became a matter of little consequence, and it was so understood by both parties. I have not since been able to ascertain the precise motives which caused this abrupt issue, but I suspect that the unusually, as well as unexpected, good sale at Rayas last week, has materially influenced this issue. Be this as it may, and although very problematical, it is very clear that the hopes, in respect of a new contract, are somewhat diminished at present, and that we must await a more propitious moment to accomplish that important object; in the meanwhile, the directors may rest quite assured that neither time nor opportunity will be lost sight of by me, and, further, that, although delayed, the object will still be attained at last."

Zinciferous and Oxidized.—The affairs of these districts remain in much the same state as reported at the last meeting. In the former the lawsuit with the owners of the mine of San Anselmo was still pending, and on Mr. Shoolbred's recent visit to the city of Mexico, he had done all in his power to expedite the decision thereof, and would again urge its completion on his next visit to that city. In Oxidized the hacienda of San Pedro Nolasco was still in the hands of the association, no eligible opportunity having yet offered for the disposal thereof.

Finances in Mexico and Remittances.—Since the last half-yearly meeting Mr. Shoolbred has remitted to the directors the sum of £290,184 4d. in £14,100, received on the 14th October, and, on the 16th October, his available asset was £2,263 4 4, subject to the liabilities of current expenditure; he had also £9,054 4 4 in Treasury orders, in the hands of Messrs. Manning and Marshall, received on account of claims in the Government. The payment of which, together with the interest thereon, Mr. Shoolbred was using his best endeavours to obtain.

Finances in London.—The directors beg to submit to the meeting the following account (audited), from 31st December, 1840, to 31st December, 1841—

Particulars	Amount
Brought forward from account audited to 31st December, 1840—cash lent at interest, 2000; at bankers, 11,000; 2d. petty cash, 27s. 11d.; stamps, 144d.	£10,979 4 2
Transfer fees and discount on stamps	7 9 0
Interest on Exchange bills exchanged, and interest on money lent	299 18 0
Remittances from Mexico in specie	19,992 0 4
Amount due to sundry persons	256 0 10
Cash	£30,629 9 6

Particulars	Amount
Paid to sundry persons, being creditors, on 31st Dec., 1841	£271 5 8
Amount charged to the manager in Mexico for 640 bottles quicksilver shipped, 3000; 1000; 6d. sundry payments, 2071 5s.	9,574 5 6
Amount paid for insurance and shipping charges on specie received from Mexico	264 0 3
Office salaries, &c., wages—one year	372 13 10
Office expenses for one year	224 14 10
Loanhold estate, for sundry repairs	14 17 9
For directors' attendance fees—this year	115 0 0
Auxiliary capital, in part repaid	200 0 0
Red scrip, ditto ditto	6,507 0 0
Stamps for red scrip	11 14 2
Interest on Exchange bills bought	182 9 0
Interest on bank bills on hand, 7500; cash lent at interest, 1850; ditto at bankers, 1464 10s. 2d.; petty cash, 6d. 17s. 6d.; stamps, 144d. 10s.—10,200 10 2	£30,629 9 6

From which amount of assets of 10,200 10s. 2d., it is to be deducted the following sums, since paid—viz., to sundry persons, being creditors, on the 31st December last, 2562 18s. 4d.; for sundries, 121 10s. 10d.—2683 10s. 10d.; and the liabilities are, 10,128 11s. 5d.—Auxiliary capital, in course of payment, contained, 1462 10s. 10d.; red scrip, ditto ditto, 2000; 1000; 6d.—Leaving a surplus of 10,000 10s. 2d.

A PROPRIETOR inquired how the 21,000 dollars were saved by giving up the mine?—The CHAIRMAN replied to that and several other questions, that it was by giving up the contract before the time had expired, as they were losing weekly; it was only by works of research that a profitable result could be obtained, and Mr. Shoolbred was doing right in not entering into any expensive researches before he was certain that the contract for a new lease would be entered into, as if any important discovery were made it would be to the advantage of the owners to refuse such a lease, as it might be worth their while to work the mine themselves; in this case the debt of 290,000 dollars, or about 185,000l., due from the owners to the association, would have to be paid out of the profits of the workings, and the company would have power, by the Mexican law, to place a superintendent to see that a certain portion of such profits was applied to liquidate such a debt; the materials, stores, and cash on hand at the mine were valued at 60,000l., which they would be obliged to purchase, as it could not be worked without them, and nobody could supply them so cheaply; that was the company's security for the value of their stores; the remainder of the English debt was 36,000l. red scrip—the directors had paid off several of the company's debts, amounting to about 78,000l.; the establishment will be reduced as much as possible in case of a refusal on the part of the owners of the mine to enter into a new contract, as company must be the order of the day, and if a new contract should be entered into it would be to such an extent that no further call should be made upon the proprietors.

Mr. C. FRANKS requested to know if the agreement required the proprietors to take the materials of a valuation?—The CHAIRMAN replied that there was no obligation, but the owners could not obtain the necessary as cheaply anywhere else.—The report was then unanimously adopted.—Thanks were voted to the chairman and directors, and the meeting adjourned.

GREAT WHEAL CHARLOTTE MINING COMPANY.

The half-yearly general meeting of the shareholders in the above company was held at the George and Vulture Tavern, on Monday, 24th inst.

G. B. CASE, Esq., in the chair.

The advertisement convening the meeting having been read and confirmed, the CHAIRMAN said that some of the proprietors could feel more disappointed with the result of the last six months' working than the directors, and it was necessary to raise further capital to carry on the mine; Mr. Taylor had come up from Cornwall, and would give the shareholders such information as he thought would warrant that course; it remained, of course, with the proprietors to decide what steps should be taken; for his part, if there should be a refusal, he would realize his share of what was left, or if they agreed to continue their measures he would be equally willing to subscribe his share of the new capital to be raised; he was a largely interested shareholder, holding shares to the extent of one-tenth of the mine.

Mr. NICHOLS then read a report from Captain W. Fowler and T. B. Nichols.

Jan. 18—Meeting postponed this date to 1st Feb., at 10 o'clock, on account of the weather.

hand from our report thereon. The engine shaft has been sunk about eight feet below the eighty-two fathom level, but its sinking has lately been suspended, and, as we think, properly so, until some further discovery is made at the eighty-two fathom level. At the eighty-two fathom level have been extended east and west, the level generally is large, but unproductive, especially eastward, where the run of ore ground goes down in the level over eight to have been met with before now, and it consequently follows, that a falling off in the prospects of the mine, in that direction, has taken place. The level eastward has been driven on the north part of the lode for some fathoms in length; we would now recommend that the south part of it be cut through, and if found unproductive, the driving of this level should be discontinued. In the western end of this level there has lately been a branch of good ore, producing about a ton per fathom, and the appearance of the lode, on the whole, is more favourable than it has hitherto been. The seventy-two fathom level has been passing through unproductive ground for some time past, but it has now a large lode in it, with some ore, and a further improvement may be expected shortly. A winze has been sunk a few feet under this level, about six feet further west than the end of the eighty-two fathom level west now is, here the lode is large, and is producing four or five tons of ore per fathom; the water has lately prevented it from being sunk, but its sinking is again resumed. Eighteen men are employed in slopes in the bottom of the seventy-two fathom level, where the ground, on an average, is yielding about four tons of ore per fathom; the number of men so employed may be increased to thirty, by which a pretty considerable increase in the returns may be made. There are also eighteen men employed in slopes between the sixty-two and seventy-two fathom levels; some of this ground will continue to yield its present rate of returns for some time to come. There are fourteen men at work on tribute, at prices varying from 10s. to 12s. in the 12. It is our opinion that some further trial should be given to the western ground, as that part of the mine affords a greater probability of the ore being found in depth than any other part; for this purpose the seventy-two and eighty-two fathom levels should be continued driving west, with as much expedition as possible; the next six months will probably be sufficient to make this trial, during that time, we think, the costs will not much exceed 7500, per month, and the returns may be kept pretty nearly at the same level. The scale of working now in progress appears to us to be regulated with as much regard to economy as the nature of the trial will admit, and, consequently, very little, if any, reduction in the costs can be made. We have made a valuation of the materials, a copy of which we send herewith, and find the amount to be 2252 10s. 4d. Some allowance from this sum should, of course, be made for the wear of the materials for the future, but we think their value will be full 2000l. at the expiration of six months.

W. FRANCIS, J. RICHARDS.

A report was then read from Mr. R. Taylor corroborative of the above. Mr. TAYLOR, in reply to several proprietors, stated that the frost had much retarded the working of ore for the last month, and which had caused so small a quantity to be sampled, but there was now from 180 to 190 tons nearly ready for sale; the changes which all mines were subject to had seriously affected the raisings, and those changes were more apparent where there were only two or three levels, as in this case, than when there were 100 levels, for when there were so many new discoveries being constantly made they compensated for the deficiency occasioned by the failure of other parts of the mine; everything appeared favourable in the 182 fathom level, and it would, doubtless, turn out three tons per fathom; they were about twenty fathoms from the shaft in the 182, and about fifteen in the 172 fathom levels. He then entered into some technical explanations about the different levels, exemplifying them by diagrams, and concluded by saying that Captains Francis and Richards had stated that the prospects of the 182 fathom level were such that the abandonment of the mine, before further trial, would be cowardly and foolish. The average expenses were about 7000, per month.

A long conversation then ensued as to the best means of raising the additional capital, and after many plans had been proposed, the following string of resolutions for that purpose was unanimously carried—

Resolved, That it is expedient that further capital be raised for the purposes of the company, by the creation of an additional number of shares, in the manner directed by the following resolutions—

That the holders of the present shares shall be entitled to the pre-emption of such shares so to be created, in proportion to the amount of the respective shares now held by them in the capital of the company.

That the number of shares being at this time 10,000, that there be created 4000 additional—making a total of 14,000 shares.

That every shareholder who shall on or before the 15th day of February next produce his present scrip shares to the office of the company, and pay the sum of 10s. per share, shall receive a new scrip share, with 4s. admitted as paid up, and engaging to pay the additional sum of 6s. per share by instalments of 2s. 6d. each, on the 15th day of April and on the 15th day of June, shall be entitled to an additional share in the capital of the company; for each sum of 10s. so paid, of a share of 2s. 10s.

That every proprietor shall be entitled to subscribe for such additional shares in proportion of two for every five held by him or her in the capital of the company.

That in case any instalments on the shares directed to be created, as aforesaid, shall remain unpaid fourteen days after the days named, they (the directors) shall be empowered, if they think it expedient so to do, to declare such shares forfeited to the use of the company, and also, if they shall think fit, to sell such shares for the benefit of the company.

That if the whole of the shares directed to be created by the foregoing resolutions be not subscribed for by the parties entitled to subscribe for the same, then, and in such case, after the 1st day of March, it shall be lawful for the directors to admit others of the proprietors or non-proprietors (giving preference to the former to subscribe for the same), so that the whole number of shares proposed to be raised may be subscribed for, or, if they shall think fit, to sell the same for the benefit of the company.

That so soon as the final payment on the 4000 shares directed to be created as aforesaid shall have been made, the directors shall call in all the shares (14,000 in number) and shall in exchange for the certificates of the same, issue 1400 new certificates of 10s. each, which shall thereupon represent the created capital of the company; and that no dividend shall be paid on any shares which shall not be consolidated in possession of this resolution.

Resolved, That the thanks of this meeting be given to Mr. Richard Taylor for his careful and efficient management of the works of the mine.

Thanks were then unanimously voted to the chairman and directors, and the meeting broke up.—[Another meeting will be shortly held to confirm these resolutions.]

LIVERPOOL AND MANCHESTER RAILWAY.

The half-yearly general meeting of the proprietors of this company was held in Liverpool, on Wednesday, the 26th inst., at the London Tavern. The advertisement calling the meeting having been read, and the minutes of the last confirmed, complaints were made that the arbitrator should not, after more than twelve months, have made his award, and ultimately a resolution was unanimously carried, to the effect that the present position of the company rendered it desirable that the matters in dispute should be speedily settled, and that the solicitor of the company be requested to communicate this resolution to the arbitrators, the failure and delay on part of the proprietors rendering the winding up of the affairs of the company more onerous to the remainder.—It being, after some conversation, agreed that this meeting should not be adjourned, but that a special meeting should be called by the directors when the award was given, the proprietors separated.

DUKE OF CORNWALL'S HARBOUR AND RAILWAY COMPANY.

The half-yearly general meeting of the proprietors of the above company was held on Thursday, the 27th inst., at the London Tavern. The advertisement calling the meeting having been read, and the minutes of the last confirmed, complaints were made that the arbitrator should not, after more than twelve months, have made his award, and ultimately a resolution was unanimously carried, to the effect that the present position of the company rendered it desirable that the matters in dispute should be speedily settled, and that the solicitor of the company be requested to communicate this resolution to the arbitrators, the failure and delay on part of the proprietors rendering the winding up of the affairs of the company more onerous to the remainder.—It being, after some conversation, agreed that this meeting should not be adjourned, but that a special meeting should be called by the directors when the award was given, the proprietors separated.

SOUTHAMPTON DOCKS COMPANY.

A special general meeting of the shareholders of this company was held at the office, in Bishopsgate-street within, on Monday the 24th inst., for considering the property of applying to Parliament for power to raise an additional 100,000l., for completing the docks, for converting the present share list of 100,000l. into the same amount of stock, as also the 100,000l., and to call upon 1000 shares, on which the calls could not be obtained. The chair was taken by J. LEITCH, Esq., who entered very fully into the nature of the undertaking, and the advantages it would hold out to the proprietors when completed.—Mr. HILL said 100,000l. would not be sufficient, and objected in the manner in which the money had been managed, and was followed by Mr. REYNOLDS, who entered very fully into the merits of the scheme, and concluded by pressing for an adjournment of a fortnight, to consider the subject.—Mr. GILES (the engineer) went into particulars respecting the state of the docks, one of which, it was expected, would be opened by Midsummer.—After a long discussion between the proprietors and the directors, the resolution, recommending the subjects of the meeting, was carried by a large majority. It appeared from the statement of Mr. S. GILES (the engineer), that, of the present amount, 600 shares were paid up for the last call, and that out of the 1000 original shares of 100l., nearly 1000 were paid up by 1000 proprietors.—The CHAIRMAN said, that in the present state of things the proposed shares could not be sold, and had there been a grant for public works last year, when application was made to the Chancellor of the Exchequer, he had on 15th June, would have been granted.—A conversation took place on various topics, after which a vote of thanks was moved to the chairman and directors, by Mr. REYNOLDS, and concluded by Mr. LEITCH, which having been carried unanimously, the meeting adjourned.

UNION BANK OF AUSTRALIA.

A special general meeting of the proprietors of this company was held at the office, 38, Old Broad-street, on Wednesday, the 26th inst., J. R. SMITH, Esq., presided. From the report it appeared, that the accounts received from New South Wales and Van Diemen's Land since July last were highly satisfactory. The amount of undivided profits to June last was 46,200l. 8s. 6d., to which was added the profit of the last half-year, less the expenses of the branches and in London, amounting to 23,564l. 10s. 7d., which left a balance, after further deductions, of 54,782l. 5s. 1d. of undivided profit. The result of the foregoing statement enabled the directors to declare a dividend of 25s. per share on the original shares, and in the second series 10s. per share, which was after the rate of 10 per cent. per annum; the reserve fund balance to the end of December was 15,195l. 8s. 6d.—Mr. BARRONDALE moved the adoption of the report, which was carried unanimously.—A discussion took place between the directors and Mr. G. R. Robinson, Mr. Mader, Mr. Nichols, and others, during which the CHAIRMAN said it was their intention to apply for an Act of Incorporation.—After votes of thanks to the London and colonial directors, two new directors were elected by ballot, after which the meeting adjourned.

QUARTERLY PUBLIC SALE OF BRITISH TIN.

The announced quarterly sale of British tin, by order of the Governor and Company of Copper Miners in England, took place on Thursday, the 27th inst., at their house, in Old Broad-street, Messrs. Short and Mahony officiating on the occasion. There were no less than 1000 lots; each lot, with the exception of ingot and bar-tin, being confined to five blocks—in the two exceptions the lots being each one ton. The whole quantity which was thus submitted was 1000 tons, as follow:—Best granulated tin, 10 tons; best grain, 45 tons; tin-plate grain, 100 tons; refined, 154 tons; common, 383 tons; ingot, 190 tons; and bar, 100 tons. Of this quantity not more than one-fifth was sold, the principal part of which was common block, at prices varying from 65s. to 66s. 6d. per cwt.; the terms of payment being—deposit 10s. on each lot, with prompt 27th April—no interest or discount—and deposits payable this day. In consequence of an apathy on the part of buyers, the whole of the lots were not put up, and the sale adjourned until that day fortnight, the 10th February, to take place at twelve o'clock. The room was well attended, and we understand, since the sale, several private bargains have been effected, reducing the quantity to be submitted at the adjourned day of sale, the company confining their sales, for the quarter, to 1000 tons, which are, according to their regulations, first submitted at public auction, and the quantity, if any, remaining from the sale subsequently sold by private contract. Some remarks on this sale will be found in another column.

IMPROVEMENTS IN GENERATING STEAM.

(Specification of the patent granted to Charles F. Smith, Liverpool, chemist, for his invention of improvements in applying heat for generating steam, for general manufacturing and other useful purposes, where heat is required; and also for an improved mode of supplying steam-boilers with hot water, the said improvements having for their object the economy of steam.)

This invention is described as consisting, firstly, in various improvements made upon a former invention; and, secondly, in an improved method of supplying steam-boilers with hot water. The description of the apparatus and means by which the invention is carried into effect, is described at great length in the specification; we can, therefore, only give a general idea of the proposed plans, and the claims set forth by the patentee, at the conclusion of his specification. The improvements herein proposed, are principally certain modifications of, and additions to, the former patent, by which the heat of a coke oven may be more beneficially applied to the generating of steam. There are above forty figures in the drawing, exhibiting different plans of building coke ovens, in none of which do we perceive any particular feature of novelty. The patentee proposes to heat the air as it passes through certain flues, beneath and around the oven, and to conduct such heated air into the main flue, for the purpose of consuming smoke; he also divides the oven, and applies distinct furnaces, and places the coal to be baked on ledges over the furnace, which he calls hoppers. The second feature of improvement is passing the education steam from an engine through a multitude of pipes, by which it becomes condensed, through the refrigerating properties of the cold air which surrounds the pipes. The condensed vapour, almost at boiling heat, passes from the pipes into the tank, and is thence conducted into the boiler. This appears to be exactly the same plan as that proposed by Dr. Charles, many years ago, in connection with his steam-engines for locomotion.

The specification concludes with a long catalogue of claims, as follow:—1st. I claim the mode of dividing coke ovens into two or more compartments, as shown and described. 2d. I claim the combination of a coke oven, with a flue or flues or feeding means, as shown and described. 3d. I claim the mode of increasing the heat and burning the smoke of coke ovens, as shown and described. 4th. I claim the combination of common fire and coke ovens. 5th. I claim the combination of fire-bars or grates, with a cooking hearth or floor. 6th. I claim the mode of heating steam-boilers and evaporating vessels, as described, whether the same are furnished with side flues or not, and whether the draught be from front to back, or in any other convenient direction. 7th. I claim the general application of the oven to steam-boilers and evaporating vessels, when combined with hoppers or feeding means, or air flues, or both. 8th. With respect to the manufacture of glass, pottery, and earthenware, I claim the general application of the waste heat of coke ovens to the particular purposes aforesaid. 9th. I claim the mode of heating glass-furnaces by fire, situated beneath the glass-furnace, instead of being placed in the furnace itself, as hitherto practiced, whether such flues be of the ordinary construction, or any of the constructions above described. 10th. I claim the combination of coke ovens, with feeding means, when the heat of such ovens is employed for smelting or manufacturing purposes, or for heating steam-boilers or evaporating vessels, whether such end be obtained by introducing combustible substances, gas, or any of the means above described. 11th. I claim the mode of constructing furnaces for the combustion of slack or coal, as shown and described. 12th. I claim the mode of condensing steam, as shown and described, and thus obtaining hot water for supplying the boilers of locomotive-engines on railways or ways. And 13th. I claim the combination of a close floor, or partially close floor, and arch and feeding means or common fire, or both, as herein described, whether the same be employed for making coke or not, so long as the same is used or employed for heating purposes, according to the mode and description above specified and explained.

Conservation of Steam.—It appears that a saving of several thousand pounds a-year—as much (according to the *London Mercury*) as 5000l. or 6000l.—will accrue to the North Midland Railway Company, if the experienced new making to use coal instead of coke, in their steam-engines, by the application of Hall's smoke-consuming apparatus, should succeed. Of this there is the most confident expectation, from the experiments that have already been made at Leeds within the last few days.—The *Leeds Intelligencer* states, that, with a view to preserve the valuable information communicated at the recent meeting at Leeds, and to extend its usefulness to other parts of the kingdom, where it is equally wanted, the committee then appointed have requested Mr. William West, the chemist, to draw up a short summary of their and of any other known modes of preventing or consuming smoke, giving a concise account of the invention, date of introduction, where the "specification" is to be found, the mode of operation, description of testimonials, agents appointed, places where each may be seen in operation, and of patent right, of apparatus and of erection, with directions where more minute information can be obtained. This will form a pamphlet of moderate size, from which parties proposing to erect or alter boilers will be enabled, with ease, to select the plan best suited for their locality and purposes. Mr. West has long paid attention to the subject, and will, no doubt, select and arrange his materials with diligence, impartiality, and his usual ability.

STEAM NAVIGATION.—Taking the small interest in the statement of the transactions from smoke, we insert the following satisfactory correspondence:—

W. West, chemist, Northampton, Jan. 12, 1842.
Dear Sir, I have the pleasure to send you an extract from the proceedings of the proprietors of steam-boilers, at their annual meeting, held on 1st inst., at 100, Old Broad-street, London.

Mr. West, on the 12th inst., has been well on his way to Leeds, to see the great improvement in the quantity of smoke in still more economical than that of the old system.

C. W. Williams, Esq., City of London Company, Water Street.
Dear Sir, The proprietors of steam-boilers reported to the meeting, that the steam-boiler of the North Midland Railway Company had been fitted with the smoke-consuming apparatus, and that the result was a saving of 5000l. or 6000l. a-year.

Respectfully, &c., &c., &c.

body of 1,000,000 cubic feet would amount to a stream of air filling that area, and no less than 160 miles in length; so that, if the furnace consumed a ton of coal in the hour, the current of air or draught must pass in at the rate of 160 miles an hour, and, consequently, it will have to pass at double the speed through the same orifices. I might quote many other authorities for a similar confounding of the application of hot air in the combustion of gaseous matter with that of solid anthracite or coke, as in the iron manufacture. One writer, after enlarging on the supposed advantages of hot air, observes:—"Thus the process requires many of the well-known advantages belonging to the hot air blast, as used in metallurgical operations." It is this confounding the two processes so essentially different as the combustion of solid and gaseous bodies that has led to such anomalies. At the late meeting at Leeds, one of the patentees disputed the point as to the use of hot air, and said he never heard it, for the first time, stated to his surprise, that hot air was unfavourable to combustion. I replied, that my objection lay to its application to the combustion of gaseous matter, and not to that of solid coke. I will now illustrate the effect of thus raising the temperature of the air in our boiler furnaces, by reference to the bulk or volume it assumes under this heating process. I now exhibit a diagram, describing three bladders or bags, each containing the same quantity of air, supposed to be 36 grains, of which, of course, 5 will be oxygen. The first bag, being one-third filled, represents the air at a temperature of 60°; the second data, temperature of 60 plus 400=540; and the third bag at a temperature of 60 plus 400 plus 400=1020. It is clear that these three bags contain precisely the same quantity although they present such different relative bulks—the first appearing one-third filled, the second two-thirds full, and the third quite full; yet it is equally clear, that they all contain precisely similar weights of oxygen, the one thing useful in effecting combustion; the contents of each being eight parts by weight of oxygen, and twenty-eight of nitrogen. Thus we see that, although we have gained in temperature, it is accompanied by the greater evil of increased bulk; so that, at 1020 degrees of heat, we have three times the volume, every three feet doing, in fact, the duty of but one foot alone of the colder air. Had the advocates for the use of hot air in gaseous combustion invented a mode of increasing the temperature without increasing the bulk, the principle would have been unobjectionable. So long, however, as the bulk is increased as we increase the temperature, the advantage on the one hand is beyond measure counterbalanced by a far greater evil on the other. And I have not much overstated the case; for, in one of the papers read at the Leeds meeting, one patentee observed that he raised the temperature of the air to 500 degrees in entering his furnace. But, it will be asked, why do we not obtain the same advantage from hot air when applied to the combustion of gas, as of coke or anthracite? I answer, for this self-evident reason, that we cannot avoid ourselves of the artificial blast, either in the same manner, or to the same extent in the former, as we do in the latter case—the whole value of the hot air principle depending on the use of the blast in solid carbonaceous matter, and, as we find, what has been overlooked by many, that the pressure of the blast—the volume of air impelled—and its temperature, ever continue in given proportions to each other. On the relative value of the hot and cold air, I may here observe, that, in the course of my correspondence last year with Dr. Ure, I find this passage in one of his letters:—"There are two reasons why frosty air should make your furnaces burn better than air 30 or 35 degrees hotter. Frosty air is dense, and contains many more atoms of oxygen in the same bulk than warm air." Here lies the main point, which has been overlooked, "more oxygen in the same bulk." Again, the doctor observes:—"Frosty air, on entering your furnaces through the small apertures, undergoes a very sudden and great expansion, which must tend to promote the mixture and diffusion of the air and the gases, by the agitation thereby occasioned." Here is another material point demanding attention. Now this leads me to the chemical branch of the subject, and which has not received the attention it demands. Without going into the question of atomic diffusion, I would merely observe, that an atom of the combustible and the supporter of combustion can combine or give out heat until they are brought into contact, or within the range of chemical and electrical action. Let us see, then, how the heating the air affects this part of the process. I here exhibit three diagrams representing a given quantity, by weight of coal gas, in a state of diffusion under varying states of temperature, and illustrative of the injurious effect which hot air, and its great bulk, has in retarding diffusion. The first diagram represents the gas combined with its equivalent ten volumes of air, at a temperature of 60 degrees; the second represents the same weight of gas and air, the latter being at 540, and the third at 1020. [Mr. Williams then explained the diagrams in which the atoms of air and of coal gas were represented by globules of different colours in the first jar, a small quantity of gas lying at the bottom, and the rest of the jar filled with atmospheric air; in the second, the gases in a state of partial admixture; and, in the third jar, the particles were perfectly diffused.]—Now, on the subject of raising the temperature of the air, it is strange how we overlook the more important one of raising that of the gas. This could only arise from the error of supposing the gas to be generated at a high temperature, and to require no aid in this respect, yet this is directly the reverse of the fact; and, in truth, much of the evil of imperfect combustion, and of the generation of smoke, arises from this very circumstance, as we find that at the moment when we should endeavour to raise the temperature of the gas, we, in fact, most injudiciously do all we can to lower it, and thus defeat the very efforts of nature in effecting combustion; for we shall find the construction of many boilers to be on the principle of obtaining as much heat as possible from the flame, which is just the reverse of what is required. But let us see what the temperature of the gas as generated is. This I will do, by receiving it even into my mouth. [Mr. Williams having lighted a common oil lamp, such as is used for out-door stalls, inserted a blow-pipe into the flame, inhaled the gas, and, after showing its white, vapour-like appearance, by again expelling it through the blow-pipe into the air, proved its gaseous and inflammable nature, by blowing it gently towards a lighted candle, when there was a stream of ignited gas, of considerable brilliancy, visible to all the meeting. The neatness and simplicity of this satisfactory experiment elicited general applause.]—The last circumstance to which I shall allude, in illustration of the error we fall into, by heating the air, while we take no pains to heat the gas, but even, unawares, and unconsciously, do all we can to cool it, by the injudicious construction of our furnaces, is the fact that the gas we are called on to consume in a compound gas, and hence that there is an important and intermediate state, which must be passed over, before combustion can ensue. This intermediate state or process is its decomposition, or separation of its parts. Strictly speaking, this gas cannot be burned, though its constituents may; now, we overlook, in practice, this all-important fact, that this gas, after being generated, demands a high degree of heat before it can be decomposed, or, in fact, before it can make any use of the air we introduce. Hence, we see that the heat in the furnace, by radiation, is absolutely necessary to effect this decomposition, preparatory to its combination; but this involves a question, on which we cannot now enter. What I urge is, that, our first object should be to increase and maintain the temperature of the compound gas, and secondly to effect its decomposition; but, if we cool down this gas, before separation into its constituents of hydrogen and carbon has taken place, it will pass away unconsumed, and without producing heat or flame. [In conclusion, Mr. Williams explained, by the aid of diagrams, exhibiting, in different coloured globules, the constituent parts of carbonaceous and hydrogenated hydrogen; the proportionate volumes of hydrogen and carbon vapour forming these gases; the component parts of steam, atmospheric air, carbonic acid, &c.]

The conversation continued by Mr. Williams observing, that brick bridges were of essential service in furnaces, from their radiation not heating the gas as it passed over; the iron bridge (containing water) producing a disadvantageous opposite effect. We could not surround the furnace with too much brickwork. The Chairman said, that the advocates of hot air thought that, by heating it before admission to the furnace they prevented the nitrogen in the air from cooling down the temperature of the furnace. Mr. Williams thought the effect would be the other way; we could not tell whether the nitrogen was or was not raised to a very high temperature; both the nitrogen and nitrogen were heated, which might not be necessary. Dr. Black said, that, to heat the gas, which could not get some way, and if brought in from without it would prevent that cooling of the gas consequent on the admission of cold air; so that, if there were a direct cooling in the hot air at the bulb, there might be a counterbalancing advantage this way. Mr. Williams, in answer to some observations about the setting of fuel, said, there was no setting of fuel, because it could be used to heat the air before entering the furnace—it was a mere setting of Peter to pay Peter. The general idea was, that the heat which was in excess was taken by the chimney. But why was there any excess of heat in the chimney beyond what was required for the draught? If two furnaces did the same work, one having 1000 degrees of heat at the foot of the chimney, and the other only 500 degrees, then 500 degrees of heat were flowing over in the first; and he might just as well set the second furnace, in using two furnaces in an expansive process, then, in one of them, the first was burning even all the time. If there were surplus heat at the foot of the chimney, surely that was wasted in the furnace. This was recently was attended to, but, in his experimental furnace at Liverpool, beyond all to be a furnace, what the temperature was, and he increased it accordingly. All there was an hot beyond what was consumed. Mr. Nathan Warrington, through he did not think that the information, was an difficulty in admitting it, on account of its bulk. An objection of six inches square (which six square inches) would equal six inches square, but the advantage of a hot air blast, in existing chimneys, was to keep the smoke, &c., suspended. Mr. Williams said, the advantage was to save the heat lost in the chimney, as the heated hot air, but this was hardly different from heating gas, as the moment of its flight. The Chairman thought that, in the use of hot air, from the increasing the same amount in a much greater bulk, the particles of coal gas would have to travel to a much greater distance, before they would come within the range of

oxygen; and it probably would not find and unite with many of them, during the short time the gas was passing through the furnace. Mr. Williams said, that was exactly the case; the gas lost the temperature very fast, and unless the gas and oxygen came in contact soon to atom before the gas was cooled down, it was useless. It had been proved that the hotter the gas was made, the quicker the combination. Professor Phillips (of the Manchester New College) thought one property of heat had been overlooked—one which showed the advantage of the hot-blast for melting iron, and its utility in heating gas in the furnace—its meant the specific heat of the air. A given weight of hot air, cooling down one degree Fahrenheit, would raise the temperature of a solid body many degrees; but the same volume of hot air would produce a very trifling effect in heating the gas, because most of the combustible gases had much more specific heat than atmospheric air, so that the volume of hot air cooling down one degree would not raise the temperature of the gas more than a very small fraction of a degree. Hydrogen (one of its principal constituents) had a very high specific heat; and, therefore, the air cooling down would yield a very trifling heat, in addition to what the gas had already attained in the furnace. Dr. Black having adverted to the solar lamp as being constructed on the principle of supplying hot air, Mr. Williams said, he thought the advantage there arose from the heat radiating downwards from the dome or cup, heating the gas, and the air being projected with an increased current against the flame, thus bringing more into contact in the same time. All the heat given to the air by the apparatus would be lost insignificant and inefficient. Dr. Black said he referred to the oil lamp. Mr. Williams said, Dr. Ure had given a valuable paper on heating the oil, in which he stated, that a greater light was obtained from the increased fluidity of the oil, owing to increased temperature. But a common gas branch or tube, with Argand burner, conveyed more instruction that anything else he had met with. What was the difference between the gas issuing from the large orifice of the pipe, and from the sixteen little holes in the burner? From the first there came but light, much smoke, and less heat; from the second the very reverse of these. Why? Because the sixteen holes presented much more surface of gas in contact with the air than the one large orifice; and we know that gas and air would only come together at the surface. To increase combustion, therefore, we must increase the number of jets; and the more minute they were, the greater proportionate quantity of surface of gas was presented to the air. Finding that the only difference between them was the difference of surface, he tried to send the gas, as generated and passing over the bridge of a furnace, in small jets to mix with the oxygen of the air; but it could not be done, because not only the gas, but the carbonic acid, went over in the furnace. He then thought, if bringing jets of gas to the air were of value, bringing small jets of air to the gas would be of the same value, if there were any truth in chemistry; and this was the whole question. On the motion of Dr. Black, the thanks of the meeting were unanimously voted to Mr. Williams, for his valuable and interesting communication. The Chairman, in putting the vote, said, Mr. Williams was so clear and happy in his mode of explanation and illustration, that they were all highly indebted to him; and he hoped this would not be the last communication he would make to the gallery. Mr. Williams acknowledged the vote, and the proceedings terminated.

LAW INTELLIGENCE.

DISPUTED RIGHT TO RENEWAL OF LEASE.

WALKER & JEFFERYS.—His Honour finally disposed of this case; he had on a former day expressed himself disposed to direct two issues as to the drawing out of a mine. The parties, however, had concurred in asking the court to decide the case. The plaintiff had rested his right to relief on two grounds—first, a covenant for renewal; and, secondly, on a trust to grant a lease; as to the former, he thought the delay of the plaintiff in not demanding a lease would, or might, have barred his right to relief had the case depended on the covenant for renewal alone, but, recollecting the second ground, he did not think the delay ought to be a bar, provided that the plaintiff, or those under whom he claimed, performed their part of the lease. He had now to determine whether, upon evidence, which he had already stated was unsatisfactory to himself, the lessees had made willful default in the performance of the covenant of the lease. The question was, upon which of the parties the onus rested of giving the information required. He thought it lay upon the plaintiff himself. Up to 1815 the lessees had worked the mines and paid royalties; in that year they ceased to do so, and became chargeable with breach of covenant, unless it could be shown that it was not by their willful default the mines had become drained out. After carefully considering the evidence, he felt himself compelled to say, that the plaintiff's bill must be dismissed, and with costs.

EASTERN COUNTIES AND NORTHERN AND EASTERN RAILWAYS.

COURT OF COMMON PLEAS—JAN. 26.
The arguments in the case of the ATTORNEY-GENERAL v. THE EASTERN AND NORTHERN AND EASTERN RAILWAY COMPANIES, which was part heard on Monday, and involved a question as to the right of the companies to erect a station and other buildings connected with the railway over a public passage, called Gullard's Rents, was resumed at the sitting of the court this morning, and concluded. As the case was sent by the Lord Chancellor for the opinion of the court, Lord ALBANY estimated that the barons would certify to the Chancellor their opinion on the case submitted to them some day during the present term.

MONMOUTHSHIRE IRON AND COAL CO.—ACTION FOR CALLS.

COURT OF COMMON PLEAS—JAN. 26.
DENNER & LAMBERT.—This was an action of debt, brought by the secretary of the Monmouthshire Iron and Coal Company, to recover from the defendant the sum of 150*l.* for calls of 1*l.* 10*s.* per share upon sixty shares held by him in the undertaking. The declaration stated that the defendant was the proprietor of sixty shares in the capital of the company, and it then set forth that he, being such proprietor, sealed and subscribed the indenture of settlement by which the company was originally constituted, and that he covenanted with the trustees of the company that it should be lawful for the board of directors to make calls as often as they thought fit upon the proprietors of shares, except the proprietors for the time being of certain shares in the indenture of settlement mentioned, and thereby exempted from the payment of calls. The declaration then alleged that certain persons, being a regularly constituted board of directors, made a call upon the proprietors of shares, and that the proportion, or instalment, due from the defendant, in respect of his sixty shares in the capital of the company, amounted to the sum of 150*l.* To this declaration the defendant demurred.

Mr. Sergeant STEPHEN, in support of the demurrer, contended, in the first place, that the action was not rightly brought by the plaintiff, as secretary of the company, but should have been brought in the names of the trustees mentioned in the Deed of Settlement. Secondly, he submitted that the liability of the defendant was not sufficiently stated on the face of the declaration. There was an allegation averring that the shares held by the defendant were not part of the exempted shares. Again, it was not stated that three months had elapsed between the date of the Deed of Settlement and the day on which the call was to be paid, the date of the deed being laid under a seal.

Mr. Sergeant STEPHEN, on behalf of the plaintiff, contended that the action was well brought by the secretary of the company, and, further, that the allegations in the declaration were sufficient to show a liability on the part of the defendant. The COURT took time to consider.

BRITISH IRON COMPANY—ACTION FOR CALLS.

COURT OF QUEEN'S BENCH—JAN. 27.
SMITH & GOLDWORTHY.—This was an action brought by the plaintiff, as the public officer of the British Iron Company, against the defendant, for the payment of calls which had been made by the directors, in respect of certain shares in the said company held by the defendant. The defendant pleaded to the action, and afterwards obtained an order of Mr. Justice Wightman to be allowed to put in other pleas. Subsequently a rule was obtained by Mr. Kelly calling on the plaintiff to show cause why the defendant should not be permitted to add various other pleas, increasing the number from thirty-eight to 120, the object of each additional plea being to deny the legality of certain proceedings which had been taken by the company, whereby the defendant became liable for calls not exceeding 100*l.* per share, instead of 150*l.*, which was the maximum at the time of his purchasing his shares.

The SOLICITOR-GENERAL (with whom Mr. Best) now showed cause against the rule, and contended that it was informal. It ought to have been a rule for setting aside the order of Mr. Justice Wightman, whereas it was for a different order and another rule, so that if it was granted, there would be two contradictory orders and rules. At all events, the rule to plead, which had been granted by the learned judge, ought to be before the court so as to serve as the foundation of their decision.

Mr. KELLY (with whom Mr. J. W. Smith) in support of the rule, said they did not seek to discharge the order of Mr. Justice Wightman, for they had taken various proceedings upon it, and if that order were rescinded their proceedings would be rescinded also. They said and therefore bring their case before the court.

The COURT said they would consult the other judges on the subject. Mr. KELLY said that in both the Courts of Common Pleas and Exchequer similar rules had been obtained, but they had not yet been argued.

INFRINGEMENT OF PATENT RIGHT.

BUCK'S COURT—JAN. 27.
WILKIN & TURNER.—This morning, in the chambers of the defendant for the breach of the injunction restraining him from using the machine and

engine produced from animal oil, or the candles manufactured from the stearine, which was ordered to stand over, with liberty to the defendant to file affidavits, was resumed, and, after a discussion between Mr. Pemberton and Mr. Turner, Lord LANGDALE held that there had been a breach of the injunction, but that it was not wilful, and he referred to commit *pro forma* the defendant, who was about to appeal to the Lord Chancellor, but ordered him to pay the costs of his application.

SMELTING IRON WITH ANTHRACITE—INFRINGEMENT OF MR. CRANE'S PATENT.

COURT OF COMMON PLEAS—JAN. 27.
CRANE v. PRICE AND OTHERS.—This was an action on the case for the infringement of a patent granted to the plaintiff in 1836, for smelting iron by the use of anthracite, or stone coal, as fuel, such fuel being made serviceable, as a combustible material, by the application of a blast of air, heated to 600 degrees of Fahrenheit. At the trial the verdict passed for the plaintiff, subject to the opinion of the court upon some points reserved; the points came on for argument on Monday and Saturday last week, and were continued and concluded on Thursday, the 27th inst.—the Attorney-General, Mr. Richards, and Mr. Smith appearing for the plaintiff, and Mr. Sergeant Bompas and Mr. Roche for the defendants.—The court took time to consider. [A lengthened report, with the arguments of counsel, and the principal points of evidence, will be given on the Court delivering their judgment.]

TALACRE COAL AND IRON COMPANY—ALD. THOMAS WOOD.

CHAPELOW, TAYLOR, AND HANDSIDE, C. THOMAS WOOD, AN ATTORNEY OF THIS COURT, AND ALDERMAN OF THE CITY OF LONDON.—Mr. ROEBUCK moved in this case, on the part of the acting directors of the Flintshire coal and iron mine company, the name of which it was not at the time necessary more distinctly to state, against an attorney of this court, who, with his partner, had a short time since acted as solicitor to the company, calling on him to show cause why he should not deliver up certain papers, documents, and deeds, which had come into his hands, both in his official capacity and otherwise, and why he should not further answer the matters set out in the affidavits then brought before the court. In the early part of the year 1839, prospectuses had been issued by certain parties, in which the establishment of the company in question was announced to the public, and what rendered this case the more extraordinary, the name of the attorney against whom this proceeding had been taken, appeared at the head of the list of directors as their chairman. At the same time he and his partner acted as the solicitors of the company. After this announcement had appeared, an agreement was made by him and some others of these self-elected directors with a Mr. Leveson and Mr. Baker, for the purchase of their interest in certain coal and iron mines, which they held in Flintshire of Sir Edward Mostyn, under a peppercorn rent, by which they were to receive 20,000*l.* in cash and 35,000*l.* in shares in the company. On the 3d of October following a deed was drawn up by this chairman and solicitor, by which the same interest was sold to the company for 110,000*l.* In order to induce persons to enter into this company, it was stated in the prospectuses that no one joining in it should be liable beyond the amount of his shares—a fallacy so gross that no man of ordinary information could have been misled by it, but which, coming from an attorney in full practice, assumed the worst possible aspect. In the Deed of Settlement made on the 3d of October, the cost for drawing up of which figured in the bill sent in by the partner of the chairman, the latter made himself and two others trustees for the company. In preparing this he had affirmed much that appeared wholly false regarding matters of title, and he had stated that the land, of which the interest was thus unscrupulously appropriated, was 2000 acres in extent, when in truth it was but 777. He, however, claimed it as his own, and called on the company to pay him. He had to learn that a party, who, in a prospectus, gives it out, that a company is about to be formed, but that it really exists, becomes thereby a partner, and cannot deal with his associates as one wholly independent of them. He thought but of sharing the spoil which had thus come within his grasp.

Mr. Justice WILLIAMS said, the doubt he had from the first was, whether, supposing the facts to be true, but upon which he intimated an opinion—but supposing the facts to be true, they certainly gave rise to a necessity for a much more extended inquiry in order to meet the public justice of the country, for the thing would be left in a lame and imperfect state, supposing the rule to be made absolute in all its parts; the answering the matters in the affidavits fell infinitely short of a public prosecution for a system of complicated fraud, which would embrace all the guilty parties; but still, if the learned counsel was so advised to limit the proceedings, he saw no objection to the rule going.

Mr. ROEBUCK replied that such a proceeding, as recommended by the learned judge, would no doubt be quite proper, but he then had only to move against this person in his capacity of attorney, to compel him to give up the papers belonging to the company in his hands, but which he held as a lien, for no less a sum than 200*l.* due, he affirms, to the partnership for costs. *By and by he should be dealt with in another form*; at present he had but to answer why he withheld the papers intrusted to him in his complex functions of "chairman, trustee, vendor, and solicitor." In his astuteness he had excused himself, while chairman, from signing the bills issued to pay the debts incurred by the company, under the pretence that his partner would not permit him; and when at length another attorney for the company had been appointed, and it was subjected to a variety of actions in which it had been involved by him, he crowded its embarrassments by withholding the papers, which would be of the highest consequence in enabling it to know the true state of its affairs.

Mr. Justice WILLIAMS, after having again intimated that this case should rather be made the subject of an inquiry before a criminal court than of any other proceeding, observed that if the company were so advised he had no objection to grant the present motion in the terms mentioned.—Rule granted on both grounds—to show cause why the deeds, documents, and other papers were withheld; and why he should not answer the matter set forth in the affidavits.

STAFFORDSHIRE COAL PROPERTY—ACTION FOR TRESPASS.

COURT OF COMMON PLEAS—JAN. 28.
PADDOCK v. FORSTER.—The circumstances of this case have been already fully reported. It was an action against the representative of the Duchy of Lancaster, in the possession of coal mines in Staffordshire, for trespass, in entering upon the lands of a copyholder on the feudal manor to dig for coal. The verdict was for the defendant, and their lordships this day gave judgment upon the rule nisi since obtained to set that aside.—They discharged the rule.

DUDLEY AND MIDLAND GEOLOGICAL SOCIETY.

The first annual general meeting of this society was held at Dudley, on Monday, 17th inst., at which Lord Ward presided; the meeting was numerously attended, and the proceedings were of a highly interesting nature; the inaugural address was delivered by R. I. Murchison, Esq., President of the Geological Society of London, for which we regret we have not yet been able to find room, but in our next we purpose not only giving that interesting, but offering some general observations on the formation of the society, and the influence it is likely to have in tending to the further promotion of geological researches.

Several members of the society, resident in Wolverhampton, met at Mr. Beckett's residence on Saturday last, to discuss the propriety of establishing a branch. There are already (says the *Wolverhampton Chronicle*) nearly thirty members resident at Wolverhampton, and it was considered that if a local branch were formed, it would not only be the means of connecting the members, but would doubtless be an inducement for other gentlemen to join them, and thus strengthen the parent society. The immediate neighbourhood of Wolverhampton is exceedingly rich in fossil remains, and the beautiful strata among the coal measures are highly interesting. While Dudley boasts its unrivalled riches in the Wenlock rocks, Wolverhampton may claim those at Sedgley, including the Aymestry and Ludlow formations, as more immediately within her range. The Wolverhampton fault and its connection with the Sedgley hills, the northward extension of that fault, with the new workings in Walsendale, Widdowall, Bentley, Fulmer, &c., are subjects of the highest interest to the geologist, and of importance to the iron and coal masters. Bentley Colliery alone, with its massive bills, its great fault (northward of which is found the thick coal), and the workings of the Wenlock limestone, beneath the coal measures, would furnish an inexhaustible mass of those details and facts, which Mr. Murchison, in his admirable address, so strongly urged upon the attention of the society. As the Dudley members are occupied with their more immediate district, it becomes the scientific men in our own town (the largest and most important in Staffordshire) to give their assistance to the cause; to further this view, a provincial committee has been formed, with the intention of encouraging the resident members, and in the hope of enlisting new ones; should their efforts be received in the spirit they expect, a general meeting will be called, active and efficient officers appointed, and regulations submitted for adoption. We eagerly will for the branch society, especially patronised, as it will be, by the most industrious iron and coal masters of the neighbourhood; and we strongly urge our readers to give it encouragement and support.

NEW FERRULES-ENGINE.—A Mr. Conder has invented a new engine, the use of which, it is said, are likely to be highly important in railways—as much so, indeed, as "extremely to supersede" the machinery at work on the Blackwall and other railways, where eighteen miles a day are constantly being wound and unwound. The French Government has, it is further remarked, appointed a commission to examine the engine, with a view, if approved, to adapt it to the new lines of road now in course of formation in that country.

PROCEEDINGS OF PUBLIC COMPANIES.

UNITED MEXICAN MINING ASSOCIATION.

The half-yearly general meeting of the shareholders in the above association was held at the London Tavern, on Wednesday, the 26th inst.

Sir J. EASTHOPE, Bart., in the chair.

The SECRETARY (Mr. Mather) having read the advertisement convening the present meeting, and the minutes of the last, which were confirmed, proceeded to read the directors' report and statement of accounts, as follows:

REPORT.

The directors, in reporting to the proprietors the circumstances that have taken place since the last half-yearly general meeting, and also the present state of the affairs of the association, beg leave, in the first instance, to call their attention to the mine of Rayas, the result of the operations in which have been as follows:—viz., for the first six months, say, from 1st January to 30th June last, up to which latter date the half-yearly accounts were, as usual, made out and settled with the owners, the amount of output was..... \$169,979 4 2
The amount of returns..... 164,490 1 4

Leaving a loss of..... \$5,489 3 8
And the debt of the mine, on the 30th June, 1841, \$399,169 4 6. The result of operations for the three months, from the 1st July to the 30th September, was—
Output..... \$42,391 3 2
Returns..... \$37,319 1 6
July..... 23,279 1 7
August..... 29,992 0 4
September..... 24,283 7 2
Total..... \$105,564 4 3
\$94,578 0 0

Leaving a loss of \$11,006 4 3; and the value of ore on hand was, on the 30th September, 1841, \$29,777 1/2; and, agreeably to Mr. Shoobred's frequently expressed opinion, in which he is borne out by Mr. Glenale's special report of the 23d Sept. last, no improvement in the produce of the mine can be expected until the requisite works of research and investigation—so much and so long wanted—are undertaken, and the prosecution of which has been delayed until a new contract with the owners can be obtained.

Reyes Contract.—The old contracts for the mine would all, from lapse of time, have expired on the 31st December ult., but Mr. Shoobred had given them up on the 9th October, and the mine had been placed at the disposal of the owners, in consequence of his having failed in his endeavours to effect a new contract on equitable terms, as also of the impoverished and barren state of the mine, which, for the period those contracts had still to run, would have entailed an expense on the association of upwards of \$21,000. A correspondence on the subject of a new contract has long been carried on with the owners, though, up to the date of Mr. Shoobred's last advice, nothing had then been definitively settled, and Mr. Shoobred, in the last letter received from him, dated 24th November, states as follows:—viz., "With reference to my letter of the 23d ult. to the court, on the subject of a new contract for the mine of Rayas, I have now to state to the directors that the conferences and negotiation, in respect of a new contract, were proceeding with every prospect and probability of terminating speedily and successfully, when they were suddenly and unexpectedly set aside by a verbal message from the Sardinian, to the effect, that they had reconsidered the matter, and had come to the determination to take their chance for the present, without any such contract with the association. This unforeseen circumstance is the more inexplicable, as the conditions were all arranged and accepted, with slight modifications, with the exception of the amount of 'alimentos,' or advances on account of profits, and in this respect the difference between us was so trifling an extent, that concession, on either side, became a matter of little consequence, and it was so understood by both parties. I have not since been able to ascertain the precise motives which caused this abrupt issue, but I suspect that the unusually, as well as unexpected, good sale of Rayas last week, has materially influenced this issue. Be this as it may, and although very problematical, it is very clear that the hopes, in respect of a new contract, are somewhat diminished at present, and that we must await a more propitious moment to accomplish that important object; in the meanwhile, the directors may rest quite assured that neither time nor opportunity will be lost sight of by me, and, further, that, although delayed, the object will still be attained at last."

Zacatecas and Oaxaca.—The affairs of these districts remain in much the same state as reported at the last meeting. In the former the lawsuit with the owners of the mine of San Acasote was still pending, and on Mr. Shoobred's recent visit to the city of Mexico, he had done all in his power to expedite the decision thereof, and would again urge its completion on his next visit to that city. In Oaxaca the business of San Pedro Nolasco was still in the hands of the association, no eligible opportunity having yet offered for the disposal thereof.

Finances in Mexico and Remittances.—Since the last half-yearly meeting Mr. Shoobred has remitted to the directors the sum of \$29,200, 1/2, in \$14,100, received on the 14th October, and, on the 16th October, his available assets were \$22,853 4 1, subject to the liabilities of current expenditure; he had also \$20,644 4 1 in Treasury orders, in the hands of Messrs. Manning and Marshall, received on account of claims in the Government. The payment of which, together with the interest thereon, Mr. Shoobred was using his best endeavours to obtain.

Finances in London.—The directors beg to submit to the meeting the following account (audited), from 31st December, 1840, to 31st December, 1841:—

Brought from account audited to 31st December, 1840—cash lent at interest, 80,000; at bankers, 11,297 46 25; petty cash, 67 12b. 11d.; stamps, 144d. \$10,200 10 1
Transfer fees and discount on stamps..... 7 9 0
Interest on Exchequer bills exchanged, and interest on money lent..... 290 18 1
Remittances from Mexico in specie..... 19,992 0 4
Amount due to sundry persons..... 326 0 10

By—
Cash..... \$29,200 10 1

Paid to sundry persons, being creditors, on 31st Dec., 1841..... \$ 371 3 8

Amount charged to the manager in Mexico for 540 bottles quicksilver shipped, 30,000 lbs. 6d.; sundry payments, 207 5s. \$374 5 6

Amount paid for insurance and shipping charges on specie received from Mexico..... 264 0 5

Office salaries, &c., wages—one year..... \$72 12 10

Office expenses for one year..... 324 14 10

Leasehold estate, for sundry repairs..... 14 12 9

For directors' attendance fees—this year..... 150 0 0

Auxiliary capital, in part repaid..... 100 0 0

Red scrip, ditto ditto..... 6,327 0 0

Stamps for red scrip..... 11 14 3

Interest on Exchequer bills bought..... 183 0 0

Exchequer bills on hand, 7,500; cash lent at interest, 18,000; ditto at bankers, 84,644 12b. 7d.; petty cash, 67 12b. 11d.; stamps, 144d.—\$10,200 10 1

From which amount of assets of 16,795 10b. 5d., it is to be deducted the following amounts:—viz., to sundry creditors, on the 31st December, 1841, 326 0 10; last, 264 0 5; for sundries, 125 0b. 10d.—264 0b. 10d.; and the liabilities are 16,128 11b. 5d.—Auxiliary capital, in course of payment, 14,824 10b.; red scrip, ditto ditto, 6,327 0b.—Leaving a surplus of 10,000 10b. 5d.

A PROPRIETOR inquired how the 21,000 dollars were saved by giving up the mine?—The CHAIRMAN replied to that and several other questions, that it was by giving up the contract before the time had expired, as they were losing weekly; it was only by works of research that a profitable result could be obtained, and Mr. Shoobred was doing right in not entering into any expensive researches before he was certain that the contract for a new lease would be entered into, as if any important discovery were made it would be to the advantage of the owners to refuse such a lease, as it might be worth their while to work the mine themselves; in that case the debt of 990,000 dollars, or about 185,000, due from the owners to the association, would have to be paid out of the profits of the workings, and the company would have power, by the Mexican law, to place a superintendent to see that a certain portion of such profits was applied to liquidate such a debt; the materials, stores, and cash on hand at the mine were valued at 60,000, which they would be obliged to purchase, as it could not be worked without them, and nobody could supply them so cheaply; that was the company's security for the value of their shares; the remainder of the English debt was 36,000, red scrip—the directors had paid off several of the company's debts, amounting to about 79,000; the establishment will be reduced as much as possible in case of a refusal on the part of the owners of the mine to enter into a new contract, as economy must be the order of the day, and if a new contract should be entered into it would be to such an effect that no further call should be made upon the proprietors.

Mr. C. FRANKS requested to know if the agreement required the proprietors to take the materials of a valuation?—The CHAIRMAN replied that there was no obligation, but the owners could not obtain the necessary as cheaply anywhere else.—The report was then unanimously adopted.—Thanks were voted to the chairman and directors, and the meeting adjourned.

GREAT WHEAL CHARLOTTE MINING COMPANY.

The half-yearly general meeting of the shareholders in the above company was held at the George and Vauxhall Tavern, on Monday, 23d inst.

G. B. CARR, Esq., in the chair.

The advertisement convening the meeting having been read and confirmed, the CHAIRMAN said that some of the proprietors could feel more disappointed with the result of the last six months' working than the directors, and it was necessary to raise further capital to carry on the mine; Mr. Taylor had come up from Cornwall, and would give the shareholders such information as he thought would warrant that course; it remained, of course, with the proprietors to decide what steps should be taken; for his part, if there should be a refusal, he would rather share his share of what was left, or if they agreed to continue, their resources he would be equally willing to subscribe his share of the new capital to be raised; he was a happy interested shareholder, holding shares to the extent of one-tenth of the mine.

Mr. NICHOLS then read a report from Captain W. FRANCIS and T. R. BARNES.

Jan. 18—Having inspected this mine to-day, at your request, we are sorry to

hand you our report thereon. The engine shaft has been sunk about eight feet below the eighty-two fathom level, but its sinking has lately been suspended, and, as we think, properly so, until some further discovery is made at the eighty-two fathom level. At the eighty-two fathom level have been extended east and west, the level generally is large, but unproductive, especially eastward, where the run of the ground goes down in the level, and ought to have been met with before now; and, consequently follows, that a falling off in the prospects of the mine, in that direction, has taken place. The level eastward has been driven on the north part of the level for some fathoms in length, and we would now recommend that the south part of it be cut through, and, if found unproductive, the driving of this level should be discontinued. In the western end of this level there has lately been a branch of good ore, producing about a ton per fathom, and the appearance of the lode, on the whole, is more favourable than it has hitherto been. The seventy-two fathom level west has been passing through unproductive ground for some time past, but it has now a large lode in it, with some ore, and a further improvement may be expected shortly. A waste has been sunk a few feet lower this level, about six feet further west than the end of the eighty-two fathom level west now is; here the lode is large, and is producing four or five tons of ore per fathom; the water has lately prevented it from being sunk, but its sinking is again resumed. Eighteen men are employed in stopes in the bottom of the seventy-two fathom level, where the ground, on an average, is yielding about four tons of ore per fathom; the number of men so employed may be increased to thirty, by which a pretty considerable increase to the returns may be made. There are also eighteen men employed in stopes between the sixty-two and seventy-two fathom levels. Some also ground will continue to yield its present rate of return for some time to come. There are fourteen men at work on tribute, at prices varying from 1s. to 12s. in the lb. It is our opinion that some further trial should be given to the western ground, as that part of the mine affords a greater probability of the ore being found in depth than any other part; for this purpose the seventy-two and eighty-two fathom levels should be continued driving west, with as much expedition as possible; the next six months will probably be sufficient to make this trial, during that time, we think, the costs will not much exceed 2000, per month, and the returns may be kept to pretty nearly that amount. The scale of working now in progress appears to us to be regulated with as much regard to economy as the nature of the trial will admit, and, consequently, very little, if any, reduction in the costs can be made. We have made a valuation of the materials, a copy of which we send herewith, and find the amount to be 22,327 1/2d. Some allowance from this sum should, of course, be made for the wear of the materials for the future, but we think their value will be full 20,000, at the expiration of six months.

W. FRANCIS, J. RICHARDS.

A report was then read from Mr. R. Taylor corroborative of the above.

Mr. TAYLOR, in reply to several proprietors, stated that the frost had much retarded the washing of ore for the last month, and which had caused so small a quantity to be sampled, but there was now from 180 to 190 tons nearly ready for sale; the changes which all mines were subject to had seriously affected the raisings, and those changes were more apparent where there were only two or three levels, as in this case, than when there were 100 levels, for when there were so many new discoveries being constantly made they compensated for the deficiency occasioned by the failure of other parts of the mine; everything appeared favourable in the 182 fathom level, and it would, doubtless, turn out three tons per fathom; they were about twenty fathoms from the shaft in the 182, and about fifteen in the 172 fathom levels. He then entered into some technical explanations about the different levels, exemplifying them by diagrams, and concluded by saying that Captains Francis and Richards had stated that the prospects of the 182 fathom level were such that the abandonment of the mine, before further trial, would be cowardly and foolish. The average expenses were about 7000, per month.

A long conversation then ensued as to the best means of raising the additional capital, and, after many plans had been proposed, the following string of resolutions for that purpose was unanimously carried:—

Resolved, That it is expedient that further capital be raised for the purpose of the company, by the creation of an additional number of shares, in the manner directed by the following resolutions:—

That the holders of the present shares shall be entitled to the pre-emption of such shares so to be created, in proportion to the amount of the respective shares now held by them in the capital of the company.

That the number of shares being at this time 16,000, that there be created 2000 additional—making a total of 18,000 shares.

That every shareholder who shall on or before the 15th day of February next produce his present scrip shares in the office of the company, and pay the sum of 2s. 6d. per share, shall receive a new scrip share, with 4s. admitted as paid up, and engaging to pay the additional sum of 2s. 6d. per share by instalments of 1s. 3d. each, on the 15th day of April and on the 15th day of June, shall be entitled to an additional share in the capital of the company; for each sum of 10s. 0d. paid, of a share of 21. 10s.

That every proprietor shall be entitled to subscribe for such additional shares in proportion of two for every five held by him or her in the capital of the company. That in case any instalments on the shares directed to be created, as aforesaid, shall remain unpaid fourteen days after the days named, the directors shall be empowered, if they think it expedient so to do, to declare such shares forfeited to the use of the company, and also, if they shall think fit, to sell such shares for the benefit of the company.

That if the whole of the shares directed to be created by the foregoing resolutions be not subscribed for by the parties entitled to subscribe for the same, then, and in such case, after the 1st day of March, it shall be lawful for the directors to admit others of the proprietors or non-proprietors (giving preference to the former to subscribe for the same), so that the whole number of shares proposed to be raised may be subscribed for, or, if they shall think fit, to sell the same for the benefit of the company.

That so soon as the final payment on the 2000 shares directed to be created as aforesaid shall have been made, the directors shall call in all the shares (18,000 in number) and shall in exchange for the certificates of the same, issue 2000 new certificates of 21. 10s. each, which shall thereupon represent the created capital of the company; and that no dividend shall be paid on any shares which shall not be consolidated in pursuance of this resolution.

Resolved, That the thanks of this meeting be given to Mr. Richard Taylor for his careful and efficient management of the works at the mine.

Thanks were then unanimously voted to the chairman and directors, and the meeting broke up.—[Another meeting will be shortly held to confirm these resolutions.]

LIVERPOOL AND MANCHESTER RAILWAY.

The half-yearly general meeting of the proprietors of this company was held in Liverpool, on Wednesday, the 27th inst., at the London Tavern. The advertisement calling the meeting having been read, and the minutes of the last confirmed, complaints were made that the arbitrator should not, after more than twelve months, have made his award, and ultimately a resolution was unanimously carried, to the effect that the present position of the company rendered it desirable that the matters in dispute should be speedily settled, and that the arbitrator of the company be requested to communicate this resolution to the arbitrator, the failure and delay on part of the proprietors rendering the winding up of the affairs of the company more onerous to the remainder.—It being, after some conversation, agreed that this meeting should not be adjourned, but that a special meeting should be called by the directors when the award was given, the proprietors separated.

DUKE OF CORNWALL'S HARBOUR AND RAILWAY COMPANY.

The half-yearly general meeting of the proprietors of the above company was held on Thursday, the 27th inst., at the London Tavern. The advertisement calling the meeting having been read, and the minutes of the last confirmed, complaints were made that the arbitrator should not, after more than twelve months, have made his award, and ultimately a resolution was unanimously carried, to the effect that the present position of the company rendered it desirable that the matters in dispute should be speedily settled, and that the arbitrator of the company be requested to communicate this resolution to the arbitrator, the failure and delay on part of the proprietors rendering the winding up of the affairs of the company more onerous to the remainder.—It being, after some conversation, agreed that this meeting should not be adjourned, but that a special meeting should be called by the directors when the award was given, the proprietors separated.

SOUTHAMPTON DOCKS COMPANY.

A special general meeting of the shareholders of this company was held at the office, in Bishopsgate-street, on Monday the 26th inst., for considering the propriety of applying to Parliament for power to raise an additional 100,000, for completing the docks, for converting the present share list of 100,000, into the same amount of stock, as also the 100,000, and to extinguish 1000 shares, on which the calls could not be obtained. The chair was taken by J. LINGARD, Esq., who entered very fully into the nature of the undertaking, and the advantages it would lend out to the proprietors when completed.—Mr. Hill said 100,000 would not be sufficient, and suggested to the meeting in which the concerns had been arranged, and was followed by Mr. BERNARD, who entered very fully into the nature of the estimate, and concluded by pressing for an adjournment of a fortnight, to consider the subject.—Mr. GILES (the engineer) went into particulars respecting the state of the docks, one of which, it was expected, would be opened by Mr. BERNARD.—After a long discussion between the proprietors and the directors, the resolution, embodying the objects of the meeting, was carried by a large majority. It appeared from the statement of Mr. BERNARD (the secretary), that, of the present amount, 400 shares were paid up for the last call, and that out of the 1000 original shares of 100, nearly 5000 were paid up by 100 proprietors.—The CHAIRMAN said, that in the present state of things the limited shares could not be sold, and had there been a grant for public works last year, when application was made to the Committee of the Exchequer, he had on 10th 10,000, would have been granted.—A conversation took place on various topics, after which a vote of thanks was moved by the chairman and directors, by Mr. FRANKS, and seconded by Mr. DAVENPORT, which having been carried unanimously, the meeting adjourned.

UNION BANK OF AUSTRALIA.

A special general meeting of the proprietors of this company was held at the office, 35, Old Broad-street, on Wednesday, the 26th inst. J. B. SMITH, Esq., presided. From the report it appeared, that the accounts received from New South Wales and Van Diemen's Land since July last were highly satisfactory. The amount of undivided profits to June last was 48,800 2s. 6d., to which was added the profit of the last half-year, less the expenses of the branches and in London, amounting to 33,564 10s. 7d., which left a balance, after further deductions, of 44,792 5s. 1d., of undivided profit. The result of the foregoing statement enabled the directors to declare a dividend of 25s. per share on the original shares, and in the second series 10s. per share, which was after the rate of 10 per cent. per annum; the reserve fund balance to the end of December was 15,192 6s. 6d.—Mr. BERNARD moved the adoption of the report, which was carried unanimously.—A discussion took place between the directors and Mr. G. R. ROBISON, Mr. Mader, Mr. Nichols, and others, during which the CHAIRMAN said it was their intention to apply for an Act of Incorporation.—After votes of thanks to the London and colonial directors, two new directors were elected by ballot, after which the meeting adjourned.

QUARTERLY PUBLIC SALE OF BRITISH TIN.

The announced quarterly sale of British tin, by order of the Governor and Company of Copper Miners in England, took place on Thursday, the 27th inst., at their house, in Old Broad-street, Messrs. Short and Mahony officiating on the occasion. There were no less than 1099 bidders; each lot, with the exception of ingot and bar-tin, being confined to five blocks—in the two exceptions the lots being each one ton. The whole quantity which was thus submitted was 1000 tons, as follows:—Best granulated tin, 10 tons; best grain, 45 tons; tin-plate grain, 108 tons; refined, 134 tons; common, 393 tons; ingot, 190 tons; and bar, 100 tons. Of this quantity not more than one-fifth was sold, the principal part of which was common block, at prices varying from 65s. to 68s. 6d. per cwt.; the terms of payment being—deposit 10s. on each lot, with prompt 27th April—no interest or discount—and deposits payable this day. In consequence of an apathy on the part of buyers, the whole of the lots were not put up, and the sale adjourned until that day fortnight, the 10th February, to take place at twelve o'clock. The room was well attended, and we understand, since the sale, several private bargains have been effected, reducing the quantity to be submitted at the adjourned day of sale, the company confining their sales for the quarter, to 1000 tons, which are, according to their regulations, first submitted at public auction, and the quantity, if any, remaining from the sale subsequently sold by private contract. Some remarks on this sale will be found in another column.

IMPROVEMENTS IN GENERATING STEAM.

[Specification of the patent granted to Charles Fyfe, Liverpool, chemist, for his invention of improvements in applying heat for generating steam, for general manufacturing and other useful purposes, where heat is required; and also for an improved mode of supplying steam-boilers with hot water, the said improvements having for their object the economy of steam.]

This invention is described as consisting, firstly, in various improvements made upon a former invention; and, secondly, in an improved method of supplying steam-boilers with hot water. The description of the apparatus and means by which the invention is carried into effect, is described at great length in the specification; we can, therefore, only give a general idea of the proposed plans, and the claims set forth by the patentee, at the conclusion of his specification. The improvements herein proposed, are principally certain modifications of, and additions to, the former patent, by which the heat of a coke oven may be more beneficially applied to the generating of steam. There are above forty figures in the drawing, exhibiting different plans of building coke ovens, in none of which do we perceive any particular feature of novelty. The patentee proposes to heat the air as it passes through certain flues, beneath and around the oven, and to conduct such heated air into the main flue, for the purpose of consuming smoke; he also divides the oven, and applies distinct furnaces, and places the coal to be baked on ledges over the furnace, which he calls hoppers. The second feature of improvement is passing the education steam from an engine through a multitude of pipes, by which it becomes condensed, through the refrigerating properties of the cold air which surrounds the pipes. The condensed vapour, almost at boiling heat, passes from the pipes into the tank, and is thence conducted into the boiler. This appears to be exactly the same plan as that proposed by Dr. Church, many years ago, in connection with his steam-engines for locomotion.

The specification concludes with a long catalogue of claims, as follow:—

1st. I claim the mode of dividing coke ovens into two or more compartments, as shown and described. 2d. I claim the combination of a coke oven, with a flue or flues or feeding means, as shown and described. 3d. I claim the mode of increasing the heat and burning the smoke of coke ovens, as shown and described. 4th. I claim the combination of common fire and coke ovens. 5th. I claim the combination of fire-bars or grates, with a coke hearth or floor. 6th. I claim the mode of heating steam-boilers and evaporating vessels, as described, whether the same are furnished with side flues or not, and whether the draught be from front to back, or in any other convenient direction. 7th. I claim the general application of the oven to steam-boilers and evaporating vessels, when combined with hoppers or feeding means, or air flues, or both. 8th. With respect to the manufacture of glass, pottery, and earthenware, I claim the general application of the waste heat of coke ovens to the particular purposes aforesaid. 9th. I claim the mode of heating glass-furnaces by fire, situated beneath the glass-furnace, instead of being placed in the furnace itself, as hitherto practiced, whether such flues be of the ordinary construction, or any of the constructions above described. 10th. I claim the combination of coke ovens, with feeding means, when the heat of such ovens is employed for smelting or manufacturing purposes, or for heating steam-boilers or evaporating vessels, whether such can be obtained by introducing combustible substances, gas, or any of the means above described. 11th. I claim the mode of constructing furnaces for the combustion of stack or coal, as shown and described. 12th. I claim the mode of condensing steam, as shown and described, and thus obtaining hot water for supplying the boilers of locomotive-engines on railroads or ships. And 13th. I claim the combination of a close floor, or partially close floor, and arch and feeding means or common fire, or both, as herein described, whether the same be employed for smelting coke or not, or long as the same is used or employed for heating purposes, according to the mode and description above specified and explained.

Conservation of Steam.—It appears that a saving of several thousand pounds a-year—as much (according to the *Lancashire Mercury*) as 5000, or 6000,—will accrue to the North Midland Railway Company, if the experiment now making to use coal instead of coke, in their steam-engine furnaces, by the application of Hall's smoke-consuming apparatus, should succeed. Of this there is the most confident expectation, from the experiments that have already been made at Leeds within the last few days.—The *Leeds Intelligencer* states, that, with a view to preserve the valuable information communicated at the recent meeting at Leeds, and to extend its usefulness to other parts of the kingdom, where it is equally wanted, the committee then appointed have requested Mr. William West, the chemist, to draw up a short summary of these and of any other known modes of preventing or consuming smoke, giving a concise account of the invention, date of introduction, where the "specification" is to be found, the mode of operation, description of locomotives, agents appointed, places where each may be seen in operation, and of patent rights, of apparatus and of erection, with directions where more minute information can be obtained. This will form a pamphlet of moderate size, from which parties proposing to erect or alter boilers will be enabled, with ease, to select the plan best suited for their locality and purposes. Mr. West has long paid attention to the subject, and will, no doubt, select and arrange his materials with diligence, impartiality, and his usual ability.

Steam Navigation.—Taking up, as usual, in the abstract of the transactions from Canada, we insert the following satisfactory correspondence:—

Winnipeg, 11th March, 1841.

Dear Sir,—I have the pleasure to send you an extract from the proceedings of the proprietors of the *St. Lawrence*, at their annual meeting, held on the 13th inst.

I am, Sir, Yours truly, T. M. Thompson, Manager.

Mr. Brown would, no doubt, inform you how well we are going on at the *St. Lawrence*; the great industry is the quantity of steam to still more advantage at this season than even at the last.

C. W. Williams, Esq., City of Halifax, Esq., Water Street.

Extract.—The statement of directors reported to the meeting, that Mr. C. W. Williams's report on the operations of the *St. Lawrence* was highly satisfactory, and that the company's business was in a most flourishing state, with particular success in the *St. Lawrence*.

Revenue from Steam.—It is stated by the *London Express* that the annual produce of the private rail and works in Britain has increased, from 1830, from 100 to 275 pounds (or nearly 2000 lbs. English).

MEETINGS OF SCIENTIFIC BODIES.
IN THE ENSUING WEEK.

CONVENT	PLACE OF MEETING	DAY	OURS
British Architects	16, Grosvenor-street	Monday	8 P.M.
Medical	10, Pall-mall	Monday	8 P.M.
Linnean	21, Regent-street	Tuesday	8 P.M.
Geological	25, Great George-street	Tuesday	8 P.M.
Chemical	47, Leicester-square	Tuesday	8 P.M.
Society of Arts	Adelphi	Wednesday	8 P.M.
Geological	Somerset House	Thursday	8 P.M.
Antiquarian	Somerset House	Thursday	8 P.M.
Royal Institution	Albemarle-street	Friday	8 P.M.
Botanical	20, Bedford-street, Cav. g.	Friday	8 P.M.
Royal Asiatic	14, Grafton-street	Saturday	2 P.M.
Westminster Medical	Exeter Hall	Saturday	8 P.M.
Mathematical	Crispin-street, Spitalfields	Saturday	8 P.M.

PUBLIC COMPANIES.

COMPANY	PLACE OF MEETING	DAY	OURS
Blackburn and Hartlepool Railway	Office, Blackburn	Jan. 29	12
London Cemetery Company	22, Moorgate-street	31	1
Grand Junction Railway	Leicester	2	1
Bagle Association	2, Cannon-street	2	2
London and County Bank	71, Lombard-street	3	1
Millers' Mining Company	6, Abchurch-lane	3	1
Trefort Mining Company	8, St. Mildred's-court	7	1
East Trefort Mining Company	ditto	7	1
West London & Westminster Cem.	British Hotel, Cockspur st.	9	1
London and Birmingham Railway	Office, Birmingham	11	11
Corwall Great United Mines	York Hotel, Manchester	12	12
Chandos Mining Association	George and Vulture Tavern	12	12
Great Wh. Charlotte Mining Co.	George and Vulture Tavern	14	1
Amelior Agricultural Co.	12, King's Arms-yard	18	2

Related and Exeter Railway. 101, Jan. 31. As former calls.
North Consolidated Mining Co. 78, 6d. Feb. 21. Williams and Co.
Pulverton Tin and Copper Co. 178, per sh. 21. Bonaparte and Co.
De Dunstanville Mining Co. 178, March 1. 24, Birchin-lane.
Irish Waste Land In. Society. 11, April 18. As former calls.
Cambrin Iron & Spelter Co. 214, 17. As former calls.

NOTICES TO CORRESPONDENTS.

Mr. S. B. Rogers's fourth paper on Iron Metallurgy will appear in our next.
"S. W. B." (Tramadol).—The series of papers now in course of publication, entitled "New System of Geology," are entirely original with us, and not to be had in any other form, neither is it intended that they should be. The work included by Mr. Montague is one he has been many years collecting material for, the main features of which will be given to the scientific world through our columns; beyond this, we are not able at present to announce any further arrangements as having been entered into with the writer.
We are so probably at present of being able to devote anything like the space required by Mr. C. R. for his contemplated series of papers, on "Railways, Technically and Practically Considered," notwithstanding that we are so much occupied with the interest and importance to be attached to a discussion that must arise on their appearance (if duly treated), we feel compelled to decline his offer—on a future occasion, perhaps, it may prove acceptable.
"S. G." (St. Antell) and "F. M." (Birmingham)—see answer to "S. W. B."
"C. R. & P."—We have elsewhere briefly noticed the proceedings in this case before the Court of Common Pleas; when the decision in proceedings, and where order at length into the statements of fact, with abstract of principal points in the evidence, together with some general observations on the nature of the question in dispute.
The delay in acknowledging the receipt of "S. B. B.'s" communication arose from its being mislaid; so far from our having observed the article alluded to, we were even aware of the existence of the publication in which he says it has been inserted.
"S. B. B." On the Manufacture of Spelter—the transactions of the Dudley and Midland Geological Society's first general meeting, together with much valuable correspondence, and scientific intelligence, must again stand over. We shall probably publish an extra sheet with our next, and then bring up all arrears.
"W. B. H."—Apply to Messrs. S. B. Watson and Co., shareholders, Leeds.
Received—J. Phillips—Bob Jackson—"A Tinner"—"E. T."

On consequence of the numerous applications made to the Editor on subject of *Advers* *Remedies* which have appeared in the columns of the *MINING JOURNAL*, with reference to articles or materials used in the working of mines and the construction of railways, arrangements have been partially effected, whereby all information necessary can be acquired on application of the office of the *Journal*, at also reference made to the various mines, pits, workings, and specifications, and where specimens may be sent, if being intended to stand, a room is that express purpose. It is further requested, that notices are in course of being taken for condensing the office of the *MINING JOURNAL* the medium of acquiring information on all matters connected with mineral property, where plans and particulars of estates and mining materials for disposal may be consulted and obtained. Experienced agents in the several mining districts will undertake surveys and furnish plans, sections, and reports, on mineral property and mining undertakings.

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, JANUARY 29, 1842.

The second quarterly sale of 1000 tons of British tin by the Miners' Company took place on Thursday last, when about one-half only was submitted, the larger portion of which found buyers, at reduced prices. This result is hailed by the private smelters as a victory achieved by them, or, rather, a failure on the part of the company, which has, it is said, been brought about by sales having been lately pressed by the smelter-merchants at lower prices, and, so we are advised, with a determination, on their part, to depress the market, so as to influence the biddings at the quarterly sale, which a depreciation was well calculated to do. We have received several communications from parties whose peculiar interests are manifested by the bias observable in their letters, to which we do not deem it necessary to give insertion, having confined ourselves to that of Mr. ANCHUTE, but as the question naturally arises, whether the miner is benefited by the present system (for, most assuredly the consumer is) it may be well to adopt the arguments adduced by some of our correspondents, both in favour of and in opposition to the measure, and shall, therefore, first proceed to consider the views entertained by those who, from private interests or on public grounds, oppose the system pursued by the Miners' Company. We are given, then, to understand that the manufacturer looks upon the company as endeavouring to establish a monopoly, by crushing the private smelters (no easy task, by-the-by), whereby they may command the market, while, on the other hand, as things are at present constituted, he now has the opportunity of purchasing small lots at any time during the current quarter from the company, until the 1000 tons are taken up. We may here quote the words of an intelligent correspondent connected with the trade. He says—

"The original point was clearly against the old smelters and to protect the miner, but more than of trade, should be considered, and to battle the smeltering houses, which are the large dealers, who are known on the market in single lots; the smelters and dealers then stand the question of subsequent purchases, now, the way is opened up to the ruin of the miners they were to have protected, and what they sell is lost or nearly lost—say, from 20s. to 30s. per ton—the smeltering small dealers will not buy to the same extent, who can get a single ton at a time, and that without depressing the market, as the Miners' Company's hands-out of 1000 tons only will have been sold. It is a serious calamity to the miner, consequently, on the present point the miners bear all the loss."

Mr. ANCHUTE, in his letter, says that the effect of the sale has been that of the price of white tin being reduced 3d. per ton, and thus the miner, he whom a benefit was contemplated to arise from the measure, is in a worse position than under the *ancien regime*. It will be for the miner to consider the correctness of the several views taken, pro and con, and to determine for himself the most prudent course to adopt.

Having briefly adverted to the arguments adduced on behalf of the smelter-merchant and the consumer, let us take the other side of the question—one to which we are, we confess, well disposed to incline. We saw that, for several days before the sale, the private smelters were pressing parcels on buyers at 73d. per ton, less 5 per cent. discount, which would, after deducting shipping charges—say 12s. per ton—have left the net. Now, if we assume that the private smelters would have sold at lower prices, if such could have been effected—say at 70d. per ton, free on board, with 5 per cent. discount, which, with shipping charges, being deducted, the net price obtained would be 62d. 6s. per ton. On the other hand, the average price of the tin sold by the Miners' Com-

pany appears to be 65d. 15s. prompt 27th April, no interest or discount being allowed. If, then, we add the 3 per cent., with export duty, shipping, and lighterage, as before, of 2d. 14s., we have a price of 68d. 9s., from which, of course, again has to be deducted interest to 27th April, as also, that on stock accumulating in the quarter, being equal to about 1½ per cent., according to our calculation—the deduction of 2d. 14s. from the price in the first case mentioned, being here naturally added to the cash (or prompt) price.

Having submitted the comparative prices obtained, the question naturally arises, by which system does the miner benefit? Is it by the sale of his black tin to the private smelter, or through the Miners' Company? Leaving the prices given as data from whence he may arrive at correct conclusions, we may here introduce one or two brief remarks on the advantages which may be calculated on from support being given to the Miners' Company. In the first place, it appears to us that the price obtained for white tin was but a poor criterion in olden times, by which the tinner might reckon on the price brought at ticketing for his black tin, whereas he now certainly secures the fair market price of the article, allowance being made for cost of smelting establishment, commission, &c. Secondly, the price obtained at quarterly sales must alone be considered as the average price of the quarter, and not as applying to that particular period at which the sales take place, and, as private stocks are consumed, prices may be naturally expected to advance. Again, the fact must not be lost sight of, that the miner, through the Miners' Company, can afford to sell his manufactured tin at a less price than that realised by private parties in the trade, inasmuch, that in the one case, the sale is direct from the miner to the dealer or consumer, without the profits which must otherwise go to the smelter and merchant, and, further, without being subjected to the ill effects arising from a close monopoly on the part of the buyers; in the other, he is placed at the mercy of the smelters, who have the power of raising or depressing the price of tin stuff; and who, in their joint capacity as merchants, can, in a great measure, rule the market for tin as to prices, with a view to their own advantage, irrespective of the interests of the miner. In the one case he is content on the sale of the manufactured article to find that a fair price is given for his ore; in the other he has no control, but must, and has been, subjected to the *dictum* of the smelter. The Miners' Company have had much to contend with, and, in all probability, have more difficulties (although less insurmountable) to overcome, ere they can be placed in the position contemplated in the onset, which shall be productive of mutual advantage to the miner and to the capitalist. It is only, then, by aid being rendered on the part of the miner, that this is to be achieved, and heartily as we wish the advancement of his interests, so do we recommend his putting his shoulder to the wheel, and carrying out successfully a measure so important as relates to our home mines, but which can alone be effected by unity of action, and practically applying the Cornish motto of "one and all."

TIN TRADE.—Saturday, 12 o'clock.—The price is this day reduced by the trade 4s. per cwt.

So, then, at last, Mr. Alderman THOMAS WOOD, attorney-at-law, late trustee, chairman, and solicitor of the Talacre Coal and Iron Company, besides filling other important trusts and offices, has become entangled in the meshes of the law—his able services likely to be duly appreciated by the judges of the land—and their opinion pronounced on the legality of his acts—while of the corruptness of the motives which actuated him in the frauds practised on the community at large, but more especially on the inhabitants of Dublin, by his hypocritical cant and false representations, no doubt can exist in the mind of any honourable man. It has been, with us, a matter of surprise, that the course now taken, of applying to the court to strike the worthy (!) Alderman off the rolls, should have been so long delayed, but if we imagine the proprietors to have been gulled into the belief that he (Mr. Ald. T. Wood) could, in a great degree, release them from their difficulties by perpetrating a further fraud upon others, they, perhaps, acted wisely in the policy which prompted them to delay, for, after all, in cases of this nature, public principle too oft is sacrificed, and must give way to private interests. However, it is satisfactory to find, that fair and even-handed justice will be meted out, and the magistracy of the City of London, in all probability, relieved from an incubus calculated to reflect so much discredit upon a body which should number among them only men of high honour and principle. It will be seen, by the report of the proceedings in court on Thursday last, that an application was made, having for its object the striking off the rolls Mr. Alderman THOMAS WOOD, for certain acts of misconduct, and also having the further object of obtaining from him the books and other documents of the company, of which he has hitherto retained possession, on the pretence that 1000, or thereabouts, is due to him for law charges. It is unnecessary to say that the application was *ex parte*, and, therefore, that the worthy Alderman was not represented in court, so as to meet the allegations set up by the counsel for the plaintiffs—Messrs. CHAPPELLOW, HANDSOME, and TAYLOR, who, as acting directors of the Talacre Coal and Iron Company, and amongst the heaviest sufferers, deserve the praise and support of every shareholder for the mainly course they have now taken, having endeavoured, for many months past, but without avail, to effect such amicable arrangements as might have tended to prevent the necessity of the present application. We believe the merits will come on for hearing on the second day of next term, when those details must be given which will shame the worthy Alderman, if he possesses any feelings of honest pride, in supporting the character of a man of integrity, either in his office as Alderman—his professional character as a lawyer—or in his private capacity as a man.

In bringing the motion before the court, on which to obtain a rule, it became necessary for counsel to give a brief outline of the grounds on which the application was made, in doing which the main facts (unsupported on that occasion by evidence) were necessarily put forward, and which, having been so frequently set out in our columns, require no especial notice. The view taken by Mr. JUSTICE WILLIAMS is just such as might be expected, for, said he, "supposing the facts to be true (but upon which he intimated no opinion), they certainly gave rise to a necessity for a much more extended inquiry, in order to meet the public justice of the country." This is speaking in plain terms, and, as the facts can be substantiated by evidence, we concur in the view taken by the learned Judge, that the present application does not meet the justice of the case, and that nothing short of an indictment for conspiracy, against the whole of the conspirators of this fraudulent scheme, should satisfy the community at large. It is, indeed, a case worthy of public inquiry being instituted—at least, by the Aldermanic body, or the Court of Common Council—and most undoubtedly on the part of the deluded shareholders—with the view of exposing the fraud in its true colours, and bringing to punishment those who were the participators in the evil.

We have oft before observed on the injury which conduct such as that of Mr. Alderman THOMAS WOOD is calculated to do to the mining interest, while it brings ruin, as is the case in the present instance, on men of honourable principles, who have unfortunately risked their capital on the misrepresentations of those whose position in society might be considered as their best safeguard. One or two examples, and we shall hear no more of a repetition of such disgraceful practices—It is, therefore, with pleasure we collect from Mr. ROGERS's statement that "by-and-by he (the Alderman) should be dealt with in another form."

COMPRESSED AIR APPARATUS.

FOR SINKING THE SHAFTS OF MINES, AND FOR CARRYING ON OTHER WORKS UNDER WATER, AND IN SANDS COVERED BY THE SEA.

A paper on this subject was lately presented to the French Academy of Sciences, by M. Triger, C.E., which will be found well worthy attention. From Doué, in the department of the Maine and Loire, as far as Niort, in the department of the Loire Inferieure, there extends a coal district, well known to miners and geologists. In 1811, M. Cordier made it the subject of a memoir, and, at a later period, Messrs. Elie de Beaumont and Dufrenoy closely examined it, and traced it on the geological map of France. The Loire, in forming its course through this district, has taken a direction which cuts this bed of coal at a sharp angle, and has covered it with considerable alluvial deposits, between the towns of Rochefort and Ingrandes. Under this superstratum, which is not less than from eighteen to twenty metres in thickness, is to be found the coal bed. It was to render the extraction of the coal possible that the apparatus has been employed which we are about to describe. Numerous soundings have proved that these alluvial deposits are composed of strata of argillaceous schist, between beds of quicksand and gravel. Amongst the latter may be recognised the debris of numerous rocks which have been brought down by the insulations of the Loire; they are composed of volcanic rocks, granites, and silex. The position of these deposits, of which the coarse sands and pebbles compose the lower beds, would indicate that the cause to which they owe their origin was formerly much more active in its principle than at present—in fact, it is easy to trace the progress of the existing deposits from fine sand to coarse, then to pebbles, and, finally, to erratic blocks, which, from constant friction, have taken a form nearly spherical. The soundings have shown a fact equally remarkable—viz., that, at the period of the formation of the valley of the Loire, the rocks, whatever might have been their hardness or resisting qualities, were worn down to the same level, and with such uniformity, that the strata on which these deposits rest present a surface nearly as flat as the alluvial deposits themselves. This tract of country is, however, composed of alternate strata of rocks, so little homogeneous, and of such different degrees of hardness, that it is difficult to explain such a phenomenon. How it is that these rapid currents, to which the hollowing out of valleys is generally attributed, and which even the felspar rocks cannot resist, have not ploughed up, at the depth of several metres, the veins of coal, and the soft schists which accompany them, we are at a loss to imagine. It is not the less a fact, however, that they have not done so; this has been ascertained from the numerous soundings that have been made.

"The close examination (continues M. Triger) which I have given to this district, having shown me that from eighteen to twenty metres in thickness of quicksand must be penetrated to get at the coal, to conquer this difficulty, I have been obliged to resort to other means than those usually employed in working mines. The obstacle in question had been considered by all the miners of the district as so insurmountable, that every portion of the coal basin, which extends under the alluvial deposits of the Loire, although well known for centuries, has remained untouched. To endeavour, by means of ordinary workings, to penetrate these quicksands, which are the more moveable from being in direct communication with the waters of the Loire, was, in fact, nothing less than to endeavour to sink a shaft in that river, or to drain the river itself. There being, therefore, no possibility of draining off the water, I conceived the idea of working through it, and the most complete success has attended my efforts, owing to the employment of the following apparatus:—

"DESCRIPTION OF THE APPARATUS.—I procured a tube of sheet-iron, twelve millimetres in thickness, and 1033 metres in interior diameter. This tube was twenty metres in length, and, having been constructed in Paris, was forwarded to me in lengths of from five to six metres. These pieces, after being united, were successively sunk in the sand, in the same manner as the boring for an Artesian well. The sands were then extracted, so that we may consider the sinking of this tube, which rested on a solid bed at the depth of nineteen metres, as a species of sounding entirely new, on account of its great diameter. Nothing remarkable manifested itself during the sinking of the tube, excepting the rapidity with which the resistance augmented as soon as it quitted the common, to penetrate the coarser sand. The tube, which, to the depth of from twelve to fifteen metres, had penetrated with ease into the common sand, experienced, at a depth of from seventeen to nineteen metres in the coarse sand, such a resistance, that 200 strokes of the tool, 2000 kilogrammes in weight, were scarcely sufficient to sink it a few centimetres, though a little time previous a similar effort sank it at least one metre, so that the two last metres required, at least, twice as much labour and time as the previous parts of the operation, whence I conclude that it would have been impossible to arrive at the same results by the successive disengagement and clearing away of the sand, and by ordinary pressure, as is generally practised in England, where the soil is of a very different nature, and far from presenting the like difficulties. I now proceed to describe the compressed air apparatus. This apparatus is composed of a steam engine, two pumps to compress the air, and of an air chamber (*sac à air*). This air chamber is composed—1st, of an air-tight division in its lower part, intended to fit against the sides of the large iron tube or shaft, sufficiently close to prevent all communication between the atmospheric air and the interior of the shaft; 2d, of two pipes, one of which is intended for the introduction of compressed air into the shaft, and the other to facilitate the escape of the water, when, in consequence of the compression of the air, it is forced with more rapidity than the openings at the bottom of the shaft (produced by the imperfect contact of the tube with the gravel) will permit it to escape; 3d, of two valves large enough for the introduction of the workmen, and the extraction of the hose coil; 4th, of two stop-cocks—also, of a manometer and a safety-valve, to prevent accidents.

"THE WORKING OF THE APPARATUS.—Let us, in the first place, suppose the steam-engine to be in action. The pumps will force into the shaft, below the air chamber, such quantities of air as may be necessary to drive out the water, there being no communication between that part of the shaft and the atmospheric air. If the shaft be filled with water, the latter, yielding to the pressure of the air, will escape by the ejection pipe, and, in a short time, all the water contained in the shaft will be replaced by compressed air, and, if the working of the engine is continued, the shaft will be kept constantly dry. The introduction of the workmen into the shaft, without allowing the compressed air to escape, is effected by means of the air chamber. Let us suppose, for instance, the lower valve closed, and the air compressed in the shaft at a pressure of two or three atmospheres; the upper valve being open, the workmen descend into the air chamber, then close the upper valve above their heads, and open, at the same time, the lower stop-cock, to establish a communication with the compressed air of the shaft. At the same instant the upper valve will become fixed, by the pressure, to its bearings, and as soon as the equilibrium is established between the air in the shaft and that in the air chamber, the lower valve will be opened by its own weight, and the workmen can then enter the shaft. In order to return, it will only be necessary to reverse the order of proceeding—that is to say, to close the lower valve, and open the stop-cock of the upper division, to place the intermediate part in direct communication with the atmospheric air. At the tension of the air diminishes under the upper valve, it will open of itself, and the workmen can descend and carry away the hose coils or other substances which they have excavated. Such is the apparatus that I have invented to penetrate the quicksands which compose the alluvial deposits of the Loire."

(To be continued.)

ERRATA. BLOCKS.—At the French Academy of Sciences, on the 10th instant, M. Elie de Beaumont read a report on the geological observations made by M. Dürschner during his late travels in the north of Sweden, Norway, Finland, Russia, and Denmark, in which he noticed principally the phenomena connected with erratic blocks. He observed that the blocks found on the surfaces of rounded rocks in Finland, especially the granite rocks, were sometimes almost microscopic, sometimes as large as the roofs made by cart-wheels; and in Norway and Lapland they were observed to be all accompanied by heaps of diluvial matter, extending to immense distances; in general the streaks on the rocks were parallel to each other, but in some cases they were at right angles. The erratic blocks were generally of granite or gneiss, but between St. Petersburg and the Niemen blocks of an lime than limestone different kinds of rocks were found, all the known ones of which were in Finland; these blocks were sometimes twenty or twenty-five feet in thickness, and their angles were by no means so adust or worn, so that the idea of friction having occurred during their transport was removed. The most eastern limit of the district in Russia in which these blocks are found is the Volga.

ORIGINAL CORRESPONDENCE.

SALE OF BRITISH TIN BY THE MINERS' COMPANY.
TO THE EDITOR OF THE MINING JOURNAL.

SIR,—On looking over the correspondence which I had with you in October last, on the subject of the Company of Copper Miners in England, and comparing it with the result of the sale which the governor and directors have attempted to-day, you will be almost compelled to acknowledge the wisdom of my predictions. It is true, that they have succeeded in selling the tin at a proportion of the 1000 tons advertised, at a reduction of 9d. per ton from last fortnight's prices; but such a kind of success, to use the words of a celebrated warrior of old times, is worse than a defeat.

37, Fenchurch-street, Jan. 27.

[Some remarks on this communication will be found in another column.]

MR. ROGERS'S PAPERS ON IRON METALLURGY.
TO THE EDITOR OF THE MINING JOURNAL.

SIR,—The valuable papers of Mr. S. B. Rogers, entitled "Data for the Use of Blast-Furnace Managers," must be appreciated by all interested in the make of iron, as well as those devoted to chemical science. What constitutes the excellence of these gentlemen's exertions is the minuteness of his details and the clearness with which they are laid down. What I wish to convey to Mr. Rogers is, that when he has completed what he has so ably taken in hand, he will give his mode of analysis for iron, limestone, &c., for, alas! for those interested in science, the works we possess are too general, and what is wanted (and Mr. Rogers can supply) is specific data for working out such analyses.

Tremadoc, Jan. 24.

ON THE USE AND ABUSE OF HOT AIR IN FURNACES.
TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I perceive a letter from Mr. C. Hood in your last Journal, in reply to a former one of mine, and, as an answer to one part of the same, I request your insertion of the report of a communication from me at the last meeting at the Victoria Gallery, Manchester—I allude to Mr. Hood's advocacy of the hot air principle.

Mr. Hood appears to adopt the random sayings of those who quote me incorrectly; but my letter in the last Journal applies to some which Mr. Hood has adopted—one of which has reference to the supposed assertion by me, that the "same quantity of air is required to consume the gaseous products of coal at all periods of its combustion." I am sorry to find Mr. Hood either attending to, or quoting anything coming from, Mr. Armstrong, I conceived he would have had penetration enough to see the incongruities which that writer utters. With respect to the quantum of fuel to be placed on anything which he thinks, or asserts he saw, I would refer him to the new light theory of diffusion of Mr. Robert Armstrong, which I sent to the *Mechanics' Magazine* last week, with some remarks on the same, and where he will find that the report and opinion given of the erroneous principle on which my furnace is based was pure imagination, or "illusion," as he himself states, and the writing of a mere bit of spleen, in consequence of a note appended to page 4 of the Preface of my *Treatise*, charging him with speaking contemptuously of chemistry, &c.—Purposing to continue my observations on Mr. Hood's paper, and with remarks on his last, as soon as possible.

I remain, Sir, your's, &c.,

C. W. WILLIAMS.

[The paper referred to by Mr. Williams will be found in another column.]

REMARKS ON MR. C. W. WILLIAMS'S TREATISE ON THE COMBUSTION OF COAL.
TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In a former letter I stated that I would point out the errors which I might discover on a perusal of Mr. Williams's *Treatise on Coal*; and I now proceed to do so, in a manner which I hope will not be displeasing to him, for, as he states, that "the fact of being found to be in error is always accompanied with the conviction of being wiser," and as this necessarily involves a sense of obligation, I am not without hopes that I shall, in the end, be able to establish a claim sufficiently large to secure his gratitude for the period of his natural life. The review by Dr. Kane of my *essay On the Chemical Properties of Coal*, published by Mr. Williams in his book, and also in your Journal of the 25th ultimo, being highly approved by Mr. Williams, I purpose following that gentleman's style as closely as possible in the following review; and the only difference will be, that, in consequence of Dr. Kane not having read a single line of my *essay* when he wrote his review, he therefore erroneously attributed to me, in every instance, opinions the very reverse of what I had stated; I, on the contrary, having read Mr. Williams's *treatise*, will give his own words in proof of the accuracy of what I state. I hope this slight difference will not deprive my remarks of any of their value, and those who take an interest in the subject, will, by referring to your Journal of the 25th ult., be able to ascertain whether I have succeeded in imitating that lucid style which gave so much satisfaction in the former instance.—*Credo an carbone volandum.*

OBSERVATIONS ON MR. WILLIAMS'S TREATISE.

1st. The relative proportion which the oxygen and the nitrogen of the atmosphere bear to each other is not as one to five, neither is the proportion between one and five the same as between twenty and eighty (Mr. Williams's book states the reverse). Several arithmeticians have fully proved that the proportions between one and five, and between twenty and eighty, are not the same, and I have verified their results repeatedly. [Vide Mr. Williams's *Treatise*, page 43.]

2d. Mr. Williams is quite in error respecting the combining proportions of air and gas. If A and B represent the air and the gas, the combining proportions will not be for any gas, A' and B; because, the fourth power of A is equal to 256, and this number of atoms never combines with one atom of any description of gas, and the symbol here used never represents any other number.—[We must take into account the relative quantities to be mixed. The diffusion essential to the combustion is, then, not as between A and B, but between A' and B;—vide page 120.]

3d. When carbonic oxide and carburated hydrogen are given off by the fuel, but are not consumed in the furnace, in consequence of a deficiency of oxygen, the carbonic oxide inflames at the top of the chimney; but the carburated hydrogen is not cooled down in the flues below the temperature of ascension (as Mr. Williams supposes), because, if that were the case, the carbonic oxide, being nearly double the specific gravity of the other, it would (notwithstanding the difference in their rates of cooling) be far less likely to ascend than the carburated hydrogen—in short, the latter, however low its temperature, must always ascend in the flues, because its specific gravity is scarcely more than half that of atmospheric air, and, therefore, its ascension through the chimney must always be certain.—[Another important peculiarity of this gas (carbonic oxide) is by reason of its already possessing one-half its equivalent of oxygen, it inflames at a lower temperature than the ordinary coal gas—the consequence of which is, that the latter, in passing into the flues, is often cooled down below the temperature of ascension, while the former is sufficiently heated even after having reached the top of the chimney, and is there ignited on meeting the air;—vide page 68.]

4th. Mr. Williams is wrong also in what he considers to constitute "the entire alphabet of the combination of the carburated hydrogen gas," which gas, he states, requires two volumes of oxygen for its combustion. This is by no means the case with coal gas; for, although true carburated hydrogen requires this quantity of oxygen, coal gas is so extremely variable in its composition, that its combining proportion of oxygen varies from seven-eighths of a volume to two volumes.—[Page 52 contains this "alphabet of combination," which is a series of contradictions throughout; even the errors given for this page partake of the same singular character, for words stated therein, as those which require correction, are not to be found in the places pointed out.]

5th. There is no foundation whatever for supposing (as Mr. Williams does), that the reason of carbonic oxide inflaming at a lower temperature than coal gas, is because the former contains half its equivalent of oxygen; for, if so, carbonic acid, possessing more oxygen, ought to inflame still earlier, but will not, in fact, inflame at all.—[Vide page 68, already quoted ante.]

6th. The quantity of oxygen consumed cannot be a correct measure of the heating effect (as Mr. Williams states), except as regards bodies of like nature. It is true, the heat of bodies of like composition may be proportional to the oxygen consumed, but this cannot become a measure of comparative effect for all bodies; because, for instance, in the case of hydrogen and carburated hydrogen, the combining proportions of oxygen

(by weight) will be nearly as two to one, while the heating powers will be nearly four to one, and so of other substances.—[This quantity of oxygen expresses the relative heating power of the different coals, in admitting that the quantity of heat evolved by a combustible substance is proportional to the quantity of oxygen which is consumed in its perfect combustion;—page 19.]

Perhaps the above errors will suffice for the present, and the lesson can be renewed at a future time. I have already pointed out that the review of my *essay*, by Dr. Kane (so highly commended by Mr. Williams), is entirely erroneous as to its facts, in consequence of Dr. Kane not having read the *essay* at the time he reviewed it—that Mr. Williams is completely wrong in his chemical views of my letter, which was published in your Journal of the 8th instant—and I now (notwithstanding the certificates of excellence which Mr. Williams has published from high authorities) dispute the accuracy of his views on several of the points on which he lays the greatest stress in his *Treatise on the Combination of Coal—Fornidabiliter ceruorum exercitus, duce leone, quam leonum cervus*. Mr. Williams has himself invited the discussion, and I shall be glad to see his replies to my several statements.

CHARLES HOOD.

Earl-street, Blackfriars, January 24.

ON THE POWER AND CONSTRUCTION OF WATER-WHEELS.
TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I beg leave, through the medium of your valuable Journal, to call the attention of my fellow-miners to the (I think, too much neglected) subject of water-wheels. In so doing I hope it will be the means of making that most simple and cheapest of all moving powers more useful and efficient than it hitherto has been, for I think there is room for great improvements; and if by these few remarks I am about to make I shall be fortunate enough to draw the attention of some of the master minds, who are in the habit of writing to, and reading of, your valuable paper, I shall think myself doubly recompensed for the little time I may have bestowed on the subject.

1st. I think the velocity of our wheels is generally too great, for Smeaton, whose data was founded on experiments, says three feet per second of time is the best velocity for wheels of any diameter; and Rankine, who varies from this rule, says that the velocity of wheels should vary as the square root of their diameters, neither making the velocity of a very high wheel more than from three to seven feet per second of time, whereas many of our wheels are driven at the rate of from nine to sixteen feet—in fact, I saw one, some little time since, fifty-two feet in diameter, which revolved occasionally six times per minute, making a velocity of more than sixteen feet per second. Now, according to the laws of falling bodies, a great part of the top of the wheel is entirely useless for the water, for the first sixteen feet falls only as fast as the rim of the wheel is moving, besides the great loss that must be felt on the remaining part, for it is natural to suppose that the nearer the velocity of the wheel is to the velocity of the water the less pressure there will be on the bucket by the water.

2d. To make a wheel, whose velocity is so great, receive its water, the buckets must be very wide in the mouth; and the wider they are in the mouth the greater their angle with the rim of the wheel, and the greater the angle the sooner they will discharge the water after passing the centre, and consequently diminish the power of the wheel.

3d. I think this velocity cannot be diminished much, with the present mode of fixing the cranks, for it is evident that the resistance the wheel meets with is not regular and uniform, for as soon as the crank gets to "half stroke" the resistance is at the greatest, at which time it begins progressively to decrease against it gets "up stroke," when the wheel has no resistance at all, and in like manner when it goes "down stroke," therefore it is evident that a wheel under these circumstances cannot move at a slow rate, with a uniform flow of water, at a uniform velocity, consequently it is better that a wheel be driven fast than that it should stand still when it meets with its greatest resistance, for if it does so it will take an extra quantity of water to move it again, and after the greatest resistance is over the velocity will be very great through the remaining part of the revolution.

Sir, with these few remarks I beg to close this letter, and, if their fallacy be not shown next week by some of your able correspondents, I intend to send you for insertion what I think to be a remedy for the evils spoken of.

Bickleigh, Jan. 18.

ADCOCK'S AIR-BLAST PUMP.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Having occasion to get a lift of pumps fitted in a coal-pit of moderate depth, and having heard something of Adcock's air-blast pump, I should feel obliged by you or any of your numerous readers stating whether it has succeeded in practice, and, if it has, what are the advantages possessed by the blast-pump over the common lift-pump. At Pomberton Colliery, near Wigan, there was some time since, I think, one of the blast-pumps fitted up in a pit 300 feet deep, the success of which, if ascertained, would go far to establish the advantages held out by the patentee.

Glasgow, Jan. 22.

THE RAILWAY SYSTEM—PROF. VIGNOLES'S LECTURES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Professor Vignoles's lecture at Wornwood Scrubbs, of which you give a summary in your scientific Journal of Saturday last, is of great importance. The principal topics embraced are—the advantages of stationary over locomotive-engines—the atmospheric railway—and the practicability of dispensing, either wholly or in an essential degree, with cuttings and embankments, in order the better to ascend acclivities—on each of which subjects allow me to offer a few reflections.

Everybody must, in the abstract, agree with the learned gentleman, that stationary are more advantageous than travelling engines, for producing locomotion on railways; but the difficulty of their general application is in no case trifling, whilst in many, if not in most, cases it is insurmountable, and, therefore, their use can be of only partial adoption, unless, indeed, the atmospheric railway should perfectly succeed, or some other principle, yet to be discovered, be brought into action. In no instance could stationary-engines, with any propriety, be placed at more than three miles apart from each other, and even at this distance the frequency of stopping, thus rendered indispensable, would, on any long line, be a serious drawback in reference to speed. On such a railway as the Blackwall, which counts nearly twice as many stations, or stopping places, as the road is miles long, the system, though in many respects attended with great inconvenience, upon the whole, works well, for, by the ingenuity and pecuniary of the arrangements, applicable only to stationary-engines, this railway forms, in effect, several modes of conveyance, virtually as independent of each other as if to each station a separate and distinct line had been constructed; but, out of the metropolis, no other locality could, perhaps, be found, where any necessity could be felt for taking up and setting down passengers six or eight times in so short a distance.

That the principle of the atmospheric railway is sound, cannot, I think, be doubted; but whether we have yet arrived at the requisite knowledge to carry the principle out, is a question on which I must leave myself to be a sceptic, though if, on one point, only half of what the talented lecturer has asserted to be fact, can be substantiated, a bright prospect necessarily opens itself to our view. The success of the atmospheric railway depends, as it has always appeared to me, on the certainty with which a hot iron will perform its office in melting, as it passes, a composition of bees-wax and tallow, in order to render a grooved cylinder or tube air-tight. Here is a field of detail and complexity which I shudder to enter, for the contingencies are almost as numerous and varied as the stones on which my feet may be expected to tread. But admitting (improbable as all this is) that the iron should always retain the requisite degree of heat—that the composition could not be affected by atmospheric change—and that the leather employed to secure the vacuum should always preserve itself pliable and elastic—why the very idea of making, at railway speed, a line thing air-tight for hundreds of miles together, is most startling; in short, until twelve months' experience, on a line of at least ten miles long, shall have demonstrated the fallacy of my conclusion, a sceptic I must remain, for nothing, far excellence, more Quixotic was ever presented to my imagination. At less than half railway velocity the finger may be dipped in hot water without feeling its effect, and, whilst, in the summer of a black wind, which, in the case of a hot iron, would infallibly act as a counteracting agent in the double capacity of hardening the composition and diminishing the heat intended to be applied to it. Is the experiment at Wornwood Scrubbs, in the vacuum produced immediately

after one carriage has performed the distance, and another then traverses the line? But the learned Professor announces that it is not necessary for the tube to be air-tight, inasmuch as half a vacuum will accomplish the object. Here two questions arise—1st, how can you be certain, with a tube not perfectly air-tight, that a quarter vacuum will not be produced, instead of half? and, 2d, supposing the latter could always be depended on, what must be the size of the tube to gain, at half vacuum, the requisite power, and whether its diameter, together with other considerations, might not so increase difficulties and expense, as to render the invention valueless? We all recollect the proposed pneumatic tunnel to Brighton, and it is impossible not to consider the atmospheric railway subject, in a degree, to most, if not all, of the objections and difficulties applicable to that projected undertaking. Until, therefore, a sure, simple, and easy method shall be devised for making a tube air-tight at railway speed, I am compelled, contrary to my wishes, to despair of seeing railway trains dragged or propelled by atmospheric pressure.

Mr. Vignoles, I rejoice to find, virtually admits deep cuttings and high embankments to be an evil, and looks forward to the atmospheric railway becoming the means of ascending acclivities, whereby the necessity of such embankments and cuttings would cease to exist. The application of atmospheric power would certainly supply this desideratum, but much is yet to be done to demonstrate its practicability, whereas, without it, the means, which, in principle, is subject to no practical objection of accomplishing the object, is at hand. I allude, as you will probably anticipate, to the use of wooden driving wheels on wooden rails, described in my letter inserted in your Journal of the 8th instant, with the aid of viaducts, susceptible of being constructed at a considerably less cost than that of making high embankments and deep cuttings; and hereupon I would beg to put it to the learned Professor, and all other engineers and men of science, whether, on a steel rail, with teeth as fine as those of a smoothing file, steel driving wheels, with similar teeth on the tyre, could spin round on inclined planes as long as the teeth continued good, and whether a mixture of tar and fine sand, applied in a liquid state to wooden wheels as they progressed on wooden rails (the grain in both cases being vertical), would not produce precisely the same effect as fine teeth on steel wheels and rails? If this be conceded, there is an end to the present general system of railway construction, and a new era, propitious to the public in particular, presents itself to us. But not only will the effect in question be produced, but the cause of deterioration in metal becomes a preserver of wood; for whereas the imaginary teeth in rails and wheels would soon wear out, the wood would set as a metrie for the reception of the particles of sand, which, forming a surface, would essentially sustain the wear, while its concomitant, the tar, would materially protect the wood against damp and atmospheric action. On this interesting subject I shall, probably, address you again, and then treat of the applicability of the principle to common roads, nothing being nearer to my heart than to see the price of conveyance so greatly reduced, as (speaking hyperbolically) to make the whole population become one travelling mass. I am happy to add, that John Riddolph, Esq., the manager of the Llanelly Railway, informs me that the cast-iron and wooden wheels sent him, (which have been particularly described in your Journal), work well, and please; and I have no doubt that their safety and economy will, ere long, cause their use to become general.

London, January 10.

THOMAS PARKIN, C.E.

GEOLOGY—A NEW SYSTEM OF PHILOSOPHY.

BY HENRY GRAHAM MONTAGUE, ESQ.

THE PHENOMENA OF THE OCEAN.

In entering upon a subject of such vast importance to man as an intelligence of the first order upon earth, it is necessary that we take a passing review of the phenomena of living orders, species, and genera, and of the elementary principles, proximate principles, and compounds proceeding therefrom, inasmuch as life was primarily exclusively oceanic, and consolidated matter constituting oceanic earth was also exclusively oceanic, it follows, therefore, as a matter of course, that the ocean, as the grand laboratory in which matter was primarily produced, is the first to merit our attention.

Life in the ocean rivals in beauty and abundance terrestrial life, and its orders, genera, and species, on far as is known to us, are exceedingly numerous, and diversified in their capacities and powers, quantities and qualities, graduating through various links of production, from the infusoria, microscopically discovered to us, to animals of red blood, having brain and the complicated structure of the superior animals of terrestrial earth. Life, in its orders, genera, and species, is locally, or generally, distributed in and throughout the vast expanse of waters. The corallines, corals, madrepores, millepores, asters, fungi, conchifers, ostrac, mollusca, testacea, and the various orders, genera, and species of sea plants, are all locally disposed—the one species, or conminated particles of the many, being the occasional cause of production of another, the one species uniting, or containing, with another species, the tenure of life being a perpetual warfare against life. As living beings, all are subject to the like vicissitudes of change—all unite, unconsciously, in the one great and general purpose, the final maturity of form and qualities of this planetary body—living, they produce, by their chemical and mechanical action, animal matter, engendered, and increased with the increase of the living system; in death, the consolidated matter thus produced from the elementary principles enters into the medium in which the living body was produced, becoming an integral part of the one great whole, termed earth—its ethereal compounds being generally diffused throughout the waters in death; and by death, all are united in life and united in death, the particular species giving origin to particular aggregates, sometimes blended together in all the wildness of confusion, the bodies, and relics of bodies, forming a chaotic mass, but, as, from local affections, decomposition takes place, so harmony is gradually produced by the union and disposition of matter with matter, according to its affinities, or the force by which it is governed in its disposition and union; thus the beds of coal, of sand, of calcareous matters, and of limestones are produced.

Much remains to be discovered in the world of waters around us, every day eliciting new wonders, exciting our curiosity and admiration, and confounding the wisdom of the wise—orders, genera, and species appear and disappear, being blotted from the book of life as the accidents of circumstance may determine. All things are new under the sun, for every day, every hour, changes the result, and produces results previously unknown. Could the eye of man penetrate the deep dark veil of waters he would see matter in life and in death, geographically distributed as in terrestrial corals, hills, and chains of hills; mountains, and mountain chains, traversing the waters, being formed therein by depositions, primarily from aqueous bodies alone, but now contemporaneously formed from terrestrial and oceanic depositions. In one locality the bed of the ocean is covered with aquatic plants and animals feeding thereon, while the waters above them with living myriads, having powers of locomotion, and rising from place to place, devouring and devoured, adding, in life and in death, to the quantities and qualities of the soil over which they pass, or in which their remains are finally deposited; in other local portions all is desolate, the plains, the hills, and the mountains, are composed of sands, changing from place to place as are the deserts of the earth, and, like them, covering destruction to all genera and species subjected to their baneful influence. Here may be seen military groups rising above the heads of the valleys, formed by astral, balant, and other particular species; while, within the tropical band, the sulphuric exsuffrations spread, in its bulk of aggregate, within the waters, enclosing the whole planetary body, and producing, by the close, but certain, accession of matter, islands and continents of the terrestrial earth.

Polypt, the most minute of animal existences, perform the most important part in the economy of Nature, being the uniting criterion of consolidated matter. In the lower depths of the ocean they are of simple organization and of simple primary qualities; but, as the consolidating matter accumulates, or, beneath the tropical band, the temperature of the waters becomes more favourable for the development of compound animals of higher organization; thus, in the increase of matter, in the development of polyptian animals, new compounds are produced from the increased energy of action of the living body, and portions where through into genera and species—then the work of generation is continued to the verge of the boundary in which they were, every failure there suffering giving them increased powers of action and production. Thus, with the increase of life, rapidly generated by the local animal matter, and the fluency of life as rapidly destroyed by the solution.

increase of the animal receiving the same, and the growth may long. Some further idea of the rate required to mature the growth in the fish derived from our knowledge of the growth of white and red snout in the Mediterranean, as collected by various naturalists from the residence of the fishery of snout, as well as from personal observations. Maturity in snout is that the white snout of the Mediterranean is most abundant in waters exposed to the north, and where the sun is south and transparent; that it is seldom found in a western exposure, and never in the north; that when the currents are despoiled of it, two years are allowed by the fishers for the regeneration, and in this time it attains its maximum length and thickness of good depth it disappears. This is confirmed by Stephen, who says that, in the neighbourhood of San Stephen, the great size of snout had a first in two years, and its proportion to the depth or its disappearance in quality, and gradually disappears; that the greater quantity of snout in the depth of 125 fathoms, and some fisheries are not only in the depth of 125 fathoms; at this latter depth it is said to require two years to attain the same size which, at the depth of water that, it attains in two years. In all parts of the coast, local influences determine the time required for maturing the body produced, and the quantity and

[illegible]

Having thus taken a general review of life, exclusively oceanic, I propose, in my next, to examine of the oceanic organic body on its entering the fossil kingdom.

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MINING CORRESPONDENCE.

ENGLISH MINES.

WOLMSHAW MINING COMPANY.

Jan. 24.—I beg leave to inform you that the lode in the 110 fathom level is one foot wide, and worth about 10l. per fathom. In the 100 fathom level, the lode is still about one foot wide, and worth 10l. per fathom; in this level, east of Wall's shaft, the lode is four inches wide, with stones of ore; the lode in the wains sinking below this level, on the south part, is six inches wide, and interminable with ore. The lode in the eastern slopes, in the back of this level, is fifteen inches wide, and worth 25l. per fathom; the lode in the western slopes, in the back of this level, is fourteen inches wide, and worth 15l. per fathom; in the ninety fathom level, the lode is fourteen inches wide, and worth 15l. per fathom; in the eastern slopes, in the back of this level, the lode is fifteen inches wide, and worth 25l. per fathom; the lode in the western slopes, in the back of this level, is two feet wide, and worth 35l. per fathom. In the eighty fathom level, east of Wall's shaft, the lode is one foot wide, with stones of ore; in the eastern slopes, in the back of this level, the lode is two feet wide, and worth 30l. per fathom. The Flapjack lode, in the seventy fathom level, both east and west of Wall's shaft, is without alteration. The lode in the sixty-two fathom level, east of Bray's shaft, is one foot wide, composed of munda and spar, with a small proportion of ore. The tribute pitches are still looking favourable.

TREGILLAS MINING COMPANY.

Jan. 24.—The lode in the thirty fathom level, east of Williams's shaft, is two and a half feet wide—very good tribute ground for copper. Tregillas's lode, at the thirty fathom level, east of John's shaft, is about twenty inches wide; ditto level, two feet wide—both ends tribute ground for copper. The part we are driving on of the Mine-park lode, at the adit level, east of Morcom's shaft, is about five feet wide—tribute ground for tin; we are about to cross-cut the lode; we are carrying the rise, in the back of this level, six feet wide in the lode—it is very good tribute ground for tin. We are driving an adit, about four feet wide in the lode, at the seventeen fathom level, east of Morcom's shaft, which is good tribute ground for tin.

H. WILLIAMS. J. MORCOM.

TREGOLLAN MINING COMPANY.

Jan. 24.—I beg to inform you that the lode in the forty fathom level east is large, and black and grey ore—worth about 3l. per fathom; the cross-cut north, at this level, is extended 21 fms. 3 ft., but we have not yet interested either of the lodes in this direction; the end is at present very wet, and the ground somewhat harder than it has been. Friday last being our monthly settling-day for February, we set ten tributaries' pitches at the following prices: Two at 6s. 6d.; two at 7s.; one at 8s.; one at 10s.; one at 11s.; and three at 12s. in the 1l.

UNITED HILLS MINING COMPANY.

Jan. 24.—Williams's Shaft—No lode broken in this shaft since survey.

Jan. 24.—The lode in the hope of being able to run under the old workings of the mine, and attain the continuation of some of the many veins of ore, shown to have been exposed in the old mine above. The lode is in a less prosperous state than in the old mine, and no circumstances for the time as to place it beyond the means of doing anything towards relief by extension of work. The ore in the deepest bottom of the mine, the only point working for produce, has narrowed, and yields only some 40 cwt. weekly, though the quality continues good, about 18 mcs. per mon. The sales of the last four weeks make a total of 7034 cwt., and produce £3477 2—leaving to the company, after all deductions, £1327 4.

Dec. 3.—The Avonmore Mine has proved a counterbalance to the decline of the Cedro. Both of these undertakings are of a first-rate description, and expable, from one moment to another, of putting us on an easy footing. There is strong reason to expect that the Avonmore workings are now in whole ground, and that the mine is not likely to be a burden any longer while Cedro holds out the prospect of good returns, when time and means shall allow of its being more extensively worked. The mine will improve when the wet weather ceases. Since left this week a small profit of £32 6 to the company's share.

ST. JOHN DEL REY MINING COMPANY.

Marzo Vello, Oct. 18.—Average number of heads working eighteen days, 53-98. Mines—Sinking continued in both shafts, at Bahu and Gamba—good supply of stone; the rails have at length set in—the lode is full, and the tanks are filling. Surface Works—The haulers of hauling-engine were completed on the 16th instant, and the water turned over the wheel. Timber work for the pulleys in Bahu stage is being put up, and every nerve strained to get the western side of the machine to work this month.

Oct. 28.—Average number of heads working twenty-eight days 59-23. The rains have not regularly set in, but occasional showers have freshened the springs, and the tanks at Bonasa and Mingha are keeping the stamps at their full work. The increase of produce per cubic foot since the 18th is 1-92 oits. Mines—No more stone has been drawn from the United mines than was produced by sinking the sump, and the regular working of the slopes to their proper places. The United mines are now in order—that is, sufficient has been sunk for thirteen stops, ending at the arch near Crickett's shaft. It will require some months to communicate, by stops, the Champion with the United mines. In the beginning of November a stop will be taken up in Gamba, making the fourth.

Nov. 8.—Produce for Oct., 6688 oits. 26 grs., or, troy, 38 lbs. 6 oz. 18 grs., from 1667-6 tons of ore. Average number of heads at work during the month, 57-28. The reduction report shows a considerable improvement in the rate of the stamps; the rains have apparently set in, and we expect this month to stamp considerably more than last. The Herring stamps are increased her duty in October, that sufficient stone from the Gamba could not be raised to allow of the ores being picked; a new stop has been taken up, which will now give her a better supply. Champion Mine—The ores in this mine have improved to 3 oits. 20 grs. per ton; they have been closely picked, and the amelioration appears to be progressive as the slopes are deepened. The poor grey stone, which occupied a length of sixteen feet in June last, is going down like a wedge, and its worst part is more impregnated with pyrites than the general body of it was six months since. Gamba Mine—There are now four stops here; the only alteration in the lode is the west of Annie's shaft, where it is more free from tiles than it was at a higher horizon. Lode in Pengelly's Shaft—This ore is being stamped out at the Waver, and, when sufficient for a charge of sand has passed through, it will be amalgamated, to ascertain its value; the skins show well. The hauling-engine will not go to work before the end of the month.

Mine Report.—Bahu Mine Sump-Shaft—Sunk on the incline five feet; they have worked on three stops here, the most western of which is home to its place, and squared up; the second has ten feet, and the third eighteen feet, more ground to stop away before reaching their places, which, with squaring down, will more than supply the ore for November. Gamba.—Sump-shaft sunk five feet four inches, three stops giving ores; the lode works better west of Annie's shaft, with less tiles; another stop will be taken up here the first week in November. Champion Mine—Nine stops here, of which six have been worked upon; the poor grey stone has gradually decreased in length, occupying now only four feet of the lode. West Quorra Panella—One stop has been worked, which is almost forth to Crickett's shaft, when the next one east will be advanced to its proper distance. Pengelly's Shaft—After sinking eight fathoms four feet we cut the lode, and have opened on it fourteen feet in length and five in width; the stone appears to be very good; it will soon be sent to the stamps; in Pengelly's mine the old bottoms have been cleared up four fathoms one foot east in the mountain, where the lode is left entire, and looks very well. The air here is so bad, that it will not be possible to drive east on the lode, to see if it continues in the hill, until a communication be made between the wains and the shaft, which will be effected by the month of November.

Nov. 18.—Average number of heads working eighteen days 57-03. The stamps have done exceedingly well this month. Mines—We shall soon recommence sinking in the Bahu. The last stop taken up is still in inferior stone, and will continue there one month longer. From the Champion the stone does not look good, having come principally from the western slopes. The Gamba supply increases; the Herring stamps knock out an immense quantity of ore. Louisa Mine—Fifty tons of mineral from Pengelly's shaft, hard stone, yielded 4 oits. 19 grs. to the ton; the amalgam giving 41 per cent. of gold. The communication between the shaft and wains was effected yesterday, and Capt. Frideaux promises to keep the Sump-shaft six heads supplied from this mine; the lode is six or seven feet wide, and tears well; it is very similar to the Gamba stone, with much more manganese. Surface Works—The eastern side of hauling-engine will go to work this month—the western in the course of December; when it does, the horse-whim, which now draws from Crickett's, Duval's, and Coterworth's shafts, will be removed to the Louisa mine, from Pengelly's shaft; a short tram will be laid down to western end of Gamba tramroad, to convey, by that channel, the ores from the Louisa to the spalling floor.

COLOMBIAN MINING ASSOCIATION.

From Mr. Charles Degradat.

Marmato, July 27.—The mine has not fallen off, and, on the contrary, is improving, yet it is difficult and costly to break, even with native miners, 1000 tons of rough ore, without the great expense for tramming, carting, &c.

August 3.—Rough Ore for August.—There is every probability of 1000 tons being stamped during the present month, including 300 from the North Salto, which, according to Mr. L. Degradat's assay, contained, in the last month, 4 oits. 12 dwts. 5 grs. per ton. Middle, Escalation, Eastern End Sink—This has been sunk six feet, and when measuring this station yesterday, in company with my brother, we found the lode, to our surprise, above three feet wide, of clean ore, which shows much free gold in the lode. We heard the workman who was ordered in the back of the rise from the deep Cruzada sink very plainly, and there is no doubt the communication will be effected in a few days.

August 16.—July Cost.—It is truly lamentable that this is so very high, £6174, as seen in the following table, an particular extra items, except the carriage of fifty-one cargoes—thirty-eight from Rio Negro, and thirteen from Santa Rita—amounting to £416, having been charged; yet it must be satisfactory to you, I hope, as it is to me, to know that we have endeavored to keep the total cost as low as possible, under existing circumstances, and kept it materially within the July produce, which, according to the above statement, and including the tribute produce, leaves a net profit of £4043. Allow me, however, to direct your attention to the ground spent, and which, according to the following table, is more in July than in any preceding month, and even five times as much as in January, when the total cost amounted to £4134. July Returns.—Three amounts, before deducting the quartz, to 77 lbs. 2 oz. 15 dwts. cost gold, which, according to Mr. L. Degradat's assays, in which I have full confidence, contains 66 lbs. 18 dwts. 5 grs. gold, and 96 lbs. 9 oz. 5 dwts. 5 grs. silver; the profits which these returns, with the other six months of the year, leave, including also that arising from the tribute produce, and gold-dust purchased, appears at £13,141, after deducting English pay, English materials, agents' cost, and all other cost on the establishment, which is, in my opinion, a very satisfactory result, and there is every prospect of doing better in August, provided we shall not suffer from scarcity of water, as some one came yet through the lower Santos Acropolis, and which cannot be repaired before one month, and, to all appearance, the dry season is setting in. The mine continues very promising; the communication with the sink in the eastern end of the middle Escalation level (where the lode is yet three and a half feet wide, and very rich in gold) is not yet effected with the rise from the deep Cruzada adit cross-cut north, but, by bridging in the water over the Alto del Barru, we have discovered several extensive old workings and levels, which are unknown to the greater part of the inhabitants of this place, as likewise to Mr. and most likely driven on the North Salto and Cruzada lodes. Mr. W. Degradat is surveying there to-day, and there remains hardly a doubt but that this most important discovery will more fully substantiate my previous anticipations—viz., that the Cruzada lode will, westerly under the mountain, turn on silver, and then run parallel with the Cruzada; and, as soon as Mr. W. Degradat is not too much occupied with the business work of the mine, which is now left entirely to me, he will forward a plan and section of these levels. Explorations.—On the 7th instant, at about eleven a.m., during extensive work, a singular phenomenon took place, in the bursting or explosion of a pile of about 2000 tons of tails that were lodged at the Collina del Puro, which witnessed this extraordinary phenomenon, may that short episode of the pile (scattered pyrites, mixed with a small portion of quartz) sent for some fathoms in the air, previous to rushing down towards the Cruzada level, where part of it even reached the opposite side. With surprise it was observed, that, in places, the earth had been torn up nearly to the depth of six feet. It swept everything before it, and a poor little

agress, who was gathering fire wood, was also carried to the Quebrada (for about 200 yards distance); she was found senseless, and very much bruised, but is recovering. A considerable loss will, no doubt, be suffered, but the superintendent will endeavour to bring in water on that side of the mountain, in order to benefit these tails by tribute—the only and most economical way. The real cause of this explosion is not yet ascertained, but it can only be owing to the confinement of gases, which were produced during the process of decomposition. Tribute.—Two parties of tributaries were set at work with the Calilla tails, the company receiving one-half of their produce in gold, which is all to be delivered to the superintendent.

Sept. 14.—My last was dated the 8th inst., and the following day I received your favour of the 18th ult. with the honours' extracts, Nos. 285 and 286, and a duplicate of the chairman's letter dated London, the 11th March, 1841. The instructions conveyed in this letter are distinct, clear, and explicit; and it affords me much pleasure at present to assure you, as well as the board, that my efforts will ultimately be crowned with success. From the tenor of my No. 60 of 14th August, and from the present favourable appearance of our mine, there is not the slightest reason to contemplate winding up the company's establishment, at least, nor of the Superintendant. In former reports I have distinctly specified that according to my opinion there would be found sufficient sources of ores in the backs of the deep Cruzada adit alone, that would yield a sufficient supply of ores for a number of years for this establishment. The so-long looked for communication with a rise from this adit, and a sink from the present and principal deep salto workings, on the Cruzada main lode, having been satisfactorily accomplished a few days ago, it is now proved, beyond a doubt, that the sources of ore anticipated by me in that quarter are actually existing, and that there is no cause for doubting my previous statement respecting the sources of ore estimated above the Cruzada deep adit, on the main Cruzada lode, nor those statements incorporated in the most interesting report from Mr. Illingworth to the board of directors, dated Marmato, 15th February, 1834 (see pages 31 and 32 of the printed report), and to which with pleasure I again refer you.

Sept. 22.—August Cost.—This comes up to the enormous amount of £8031, but I beg to remark that in this item is included an extra charge of £1730—viz., for mules bought several months since, £790; cargoes of both of the last eight months, including cost for conveyance of returns, £466; carriage of English stores, £457; and for cere and tallow, £170—1730. The August produce, less the gold purchased, will amount to 48 lbs. 6 oz. 15 dwts., which, at the rate of £243 per lb., will amount to £11,500, and thus August month will likewise leave again a handsome profit.

Oct. 1.—The Mine.—The different favourable appearances in our present mining stations have on an account diminished, as you will observe from the enclosed mining report, and there is hardly any doubt but that we shall keep our cost materially within the value of the returns. The cost for August was certainly too high, but this was entirely owing to a very considerable extra charge for mules, &c., not consumed in that month. The cost for September, if no extra charge occurs, will, of course, be less, but the exact amount it is impossible to state even now. Mr. W. Degradat is measuring to-day all the bargains by himself, and from his enclosed report, you will with pleasure observe, that in following up the Cruzada lode in its greatest depth, west under the hill, in some stations one fathom will produce thirteen tons of clean ore. Mr. W. Degradat, has, this moment informed me of a most extraordinary heavy having been discovered also in the deeper workings of the salto—viz., in the Escalation end, west, where the lode was lately discovered and poor. The lode west after the heave, runs nearly north and south, has been discovered eleven feet wide, containing eighteen inches clean ore on the east wall of the heave; the remainder of the lode which appears on this spot at present rather brassy, will be more closely examined, and the aggregate contents of the ore ascertained.—[The tables, statements, and reports may be seen at the office.]

Wheel Roche, St. Austell.—While B. Juyas and W. Hore were at their work, in this mine, the ground fell and buried them; they were dug out with all possible speed, but both were dead. Juyas had changed his mode of working with one of his comrades, that he might go to St. Austell market in the afternoon.

Martine Colliery.—M. Bentley met with his death in consequence of a piece of coal falling upon his head, out of the case in which it was being drawn out of the pit; he had been previously cautioned not to remain at the bottom of the shaft whilst the coal was being drawn up, but refused compliance.

Cyfarthfa.—J. Protheroe, a miner at Cyfarthfa, was severely injured in the level on Tuesday last, from a large stone having fallen on him.

Philadelphia Works, Sheffield.—On Monday morning, about seven o'clock, the neighbourhood of Philadelphia Works, Sheffield, was alarmed by a report, loud as a discharge of artillery, occasioned by the explosion of a large (40-horse) steam-boiler on that establishment, the precise cause of which has not yet been explained; both of the bottom ends of the boiler were blown completely out, though it is stated that the steam had not been got thoroughly up, and that there was such a deficiency of water as to wash the gravel off a road at some distance when the explosion occurred.

Jarrow Alkali Works.—An awful calamity occurred at Jarrow Alkali Works, South Shields, yesterday week, by the explosion of a steam-engine boiler, whereby seven or eight workmen were dreadfully scalded, two of whom (J. Smith and T. Robertson) died that evening, and the others remain in a very precarious state. The boiler was blown up and thrown to a great distance, together with stones, bricks, &c., scattered in all directions.

APPLICATION OF THE WIRE ROPE TO RIGGING.—Several meetings of captains, commanders, and first lieutenants of ships in commission, were lately held, to take into consideration the expediency of a proposed alteration which has been suggested of substituting iron instead of rope in certain parts of the rigging of ships of war, especially the futtock shrouds. The majority of the officers composing these meetings were averse to the change, considering it at best a needless innovation, and one more likely to be attended with injurious rather than beneficial results; and that, while it would prove neither more economical than the present mode of rigging ships, nor afford any additional security to the masts, it would give an extra and unnecessary weight aloft, calculated to make vessels top-heavy, and there would be greater difficulty in replacing the iron, should any portion of it be carried away by shot or otherwise, than the rope now in use. Similar meetings have also been held by masters and boatswains, who are still more decidedly opposed to the proposed alterations.—[United Service Gazette.]—[The opinions here advanced are at complete variance with the results of experience. The weight is considerably lessened—the size of rope, or surface exposed to the action of the wind, reduced—and there is, further, an economy in the application. It is a pity that opinions of this nature should be promulgated, as by authority, without something more explicit being stated—the recorded evidence of numerous officers connected with the Admiralty, and commanders in the navy, being in favour of the wire rope rigging, after an experience of five years use. The economy, we have no hesitation in saying, has been proved; and the comparative weights and sizes of hempen and wire rope speak for themselves.]

Fossil Infusoria.—M. de Humboldt has recently presented to the Academy of Sciences at Paris, in the name of M. Ehrenberg, specimens of a peaty argillaceous deposit, lying twenty feet below the pavement of the city of Berlin, and filled with infusoria still living. Traces of the infusorian life are observable three feet below the bottom of the layer. Since 1836, when M. Ehrenberg first called attention to the immense masses of fossil infusoria, or microscopic animals, in the more recent formations, he has had occasion to observe, that the organic forms are still as active in the mud of ports and rivers, that at Wiesbaden, in the Rhine, for example, where above two and a half millions of cubic feet of mud were recently removed in one year, one-third of that entire mass consisted of microscopic animals. The masses of Linsberg present accumulations of fossil infusoria twenty-eight feet in thickness. In the peaty layer of Berlin, thread-shaped deposits of eggs reach, in some places, to the depth of sixty feet. There is no doubt that they are still alive and capable of increase. Spontaneous motion may be often observed in specimens taken from the greatest depth, though less frequently than in those near the surface. M. Ehrenberg, in whose hands the microscope has revealed such wonders, is about to produce a work on fossil infusoria, similar to that which he has already published on the living species of microscopic animals.

METEOROLOGICAL JOURNAL, 1841.

Month	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Therm. 24 in. 22 in. 20 in.	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20
Barom. 30 in. 29 in. 28 in.	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20
Wind	W. S. E.	W. S. E.	W. S. E.	W. S. E.	W. S. E.	W. S. E.	W. S. E.	W. S. E.	W. S. E.	W. S. E.	W. S. E.	W. S. E.
Clouds	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Rain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FOREIGN MINES.

ANGLA-MEXICAN MINING COMPANY.

Guatemala, Nov. 22.—It is a matter of much satisfaction to me to be able to give you, in regard to the mine of Amatlan, a pleasing account of its progress since the date of my last. From the time of its having been given wholly to tributaries (21th ult.), it has been bearing a profit, and on Saturday last the surplus for the week must have amounted to little short of £200, the being the first produced by the tributaries half of the ore, amounting the profit to be equal to the amount of the mine. This interesting state of things will be assisted by its extent operations, and this day will be commenced a level to the south-east, above twenty yards above the bottom of the San Juan, in what may be fairly supposed to be whole ground; the cost will be about £100 per week, and if the mine continues profitable, will enable us to commence another level to the south-east, from the very bottom of San

MINING
JOURNAL

CURRENT PRICES OF ENGLISH AND FOREIGN FUNDS.

REMARKS ON THE OPERATIONS OF THE WEEK.

1925-1926. 1927-1928. 1929-1930. 1931-1932. 1933-1934. 1935-1936. 1937-1938. 1939-1940. 1941-1942. 1943-1944. 1945-1946. 1947-1948. 1949-1950. 1951-1952. 1953-1954. 1955-1956. 1957-1958. 1959-1960. 1961-1962. 1963-1964. 1965-1966. 1967-1968. 1969-1970. 1971-1972. 1973-1974. 1975-1976. 1977-1978. 1979-1980. 1981-1982. 1983-1984. 1985-1986. 1987-1988. 1989-1990. 1991-1992. 1993-1994. 1995-1996. 1997-1998. 1999-2000. 2001-2002. 2003-2004. 2005-2006. 2007-2008. 2009-2010. 2011-2012. 2013-2014. 2015-2016. 2017-2018. 2019-2020. 2021-2022. 2023-2024. 2025-2026. 2027-2028. 2029-2030. 2031-2032. 2033-2034. 2035-2036. 2037-2038. 2039-2040. 2041-2042. 2043-2044. 2045-2046. 2047-2048. 2049-2050. 2051-2052. 2053-2054. 2055-2056. 2057-2058. 2059-2060. 2061-2062. 2063-2064. 2065-2066. 2067-2068. 2069-2070. 2071-2072. 2073-2074. 2075-2076. 2077-2078. 2079-2080. 2081-2082. 2083-2084. 2085-2086. 2087-2088. 2089-2090. 2091-2092. 2093-2094. 2095-2096. 2097-2098. 2099-2100. 2101-2102. 2103-2104. 2105-2106. 2107-2108. 2109-2110. 2111-2112. 2113-2114. 2115-2116. 2117-2118. 2119-2120. 2121-2122. 2123-2124. 2125-2126. 2127-2128. 2129-2130. 2131-2132. 2133-2134. 2135-2136. 2137-2138. 2139-2140. 2141-2142. 2143-2144. 2145-2146. 2147-2148. 2149-2150. 2151-2152. 2153-2154. 2155-2156. 2157-2158. 2159-2160. 2161-2162. 2163-2164. 2165-2166. 2167-2168. 2169-2170. 2171-2172. 2173-2174. 2175-2176. 2177-2178. 2179-2180. 2181-2182. 2183-2184. 2185-2186. 2187-2188. 2189-2190. 2191-2192. 2193-2194. 2195-2196. 2197-2198. 2199-2200. 2201-2202. 2203-2204. 2205-2206. 2207-2208. 2209-2210. 2211-2212. 2213-2214. 2215-2216. 2217-2218. 2219-2220. 2221-2222. 2223-2224. 2225-2226. 2227-2228. 2229-2230. 2231-2232. 2233-2234. 2235-2236. 2237-2238. 2239-2240. 2241-2242. 2243-2244. 2245-2246. 2247-2248. 2249-2250. 2251-2252. 2253-2254. 2255-2256. 2257-2258. 2259-2260. 2261-2262. 2263-2264. 2265-2266. 2267-2268. 2269-2270. 2271-2272. 2273-2274. 2275-2276. 2277-2278. 2279-2280. 2281-2282. 2283-2284. 2285-2286. 2287-2288. 2289-2290. 2291-2292. 2293-2294. 2295-2296. 2297-2298. 2299-2300. 2301-2302. 2303-2304. 2305-2306. 2307-2308. 2309-2310. 2311-2312. 2313-2314. 2315-2316. 2317-2318. 2319-2320. 2321-2322. 2323-2324. 2325-2326. 2327-2328. 2329-2330. 2331-2332. 2333-2334. 2335-2336. 2337-2338. 2339-2340. 2341-2342. 2343-2344. 2345-2346. 2347-2348. 2349-2350. 2351-2352. 2353-2354. 2355-2356. 2357-2358. 2359-2360. 2361-2362. 2363-2364. 2365-2366. 2367-2368. 2369-2370. 2371-2372. 2373-2374. 2375-2376. 2377-2378. 2379-2380. 2381-2382. 2383-2384. 2385-2386. 2387-2388. 2389-2390. 2391-2392. 2393-2394. 2395-2396. 2397-2398. 2399-2400. 2401-2402. 2403-2404. 2405-2406. 2407-2408. 2409-2410. 2411-2412. 2413-2414. 2415-2416. 2417-2418. 2419-2420. 2421-2422. 2423-2424. 2425-2426. 2427-2428. 2429-2430. 2431-2432. 2433-2434. 2435-2436. 2437-2438. 2439-2440. 2441-2442. 2443-2444. 2445-2446. 2447-2448. 2449-2450. 2451-2452. 2453-2454. 2455-2456. 2457-2458. 2459-2460. 2461-2462. 2463-2464. 2465-2466. 2467-2468. 2469-2470. 2471-2472. 2473-2474. 2475-2476. 2477-2478. 2479-2480. 2481-2482. 2483-2484. 2485-2486. 2487-2488. 2489-2490. 2491-2492. 2493-2494. 2495-2496. 2497-2498. 2499-2500. 2501-2502. 2503-2504. 2505-2506. 2507-2508. 2509-2510. 2511-2512. 2513-2514. 2515-2516. 2517-2518. 2519-2520. 2521-2522. 2523-2524. 2525-2526. 2527-2528. 2529-2530. 2531-2532. 2533-2534. 2535-2536. 2537-2538. 2539-2540. 2541-2542. 2543-2544. 2545-2546. 2547-2548. 2549-2550. 2551-2552. 2553-2554. 2555-2556. 2557-2558. 2559-2560. 2561-2562. 2563-2564. 2565-2566. 2567-2568. 2569-2570. 2571-2572. 2573-2574. 2575-2576. 2577-2578. 2579-2580. 2581-2582. 2583-2584. 2585-2586. 2587-2588. 2589-2590. 2591-2592. 2593-2594. 2595-2596. 2597-2598. 2599-2600. 2601-2602. 2603-2604. 2605-2606. 2607-2608. 2609-2610. 2611-2612. 2613-2614. 2615-2616. 2617-2618. 2619-2620. 2621-2622. 2623-2624. 2625-2626. 2627-2628. 2629-2630. 2631-2632. 2633-2634. 2635-2636. 2637-2638. 2639-2640. 2641-2642. 2643-2644. 2645-2646. 2647-2648. 2649-2650. 2651-2652. 2653-2654. 2655-2656. 2657-2658. 2659-2660. 2661-2662. 2663-2664. 2665-2666. 2667-2668. 26

^a The figures at the top of the columns refer to samples no. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

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Sampled Jan. 12, and Sold at Pearce's Hotel, Truro, Jan. 27.

TOTAL PRODUCE.

^a The figures at the top of the columns refer to months—see 1 Jan., 2 Feb., etc.

Sampled Jan. 5, and sold on the 10th

TOTAL PROJECT COST:[illegible]

本報 4月17日刊載的「本報 3月16日 發現5000年古史」一稿，經：作者、編輯、校對人員的認真校對，無誤。特此聲明。

[illegible]

* The figures at the top of the columns refer to experiments—see Table 2, Part A.

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